THE EFFECT OF DIFFERENT GOAL STRATEGIES ON ACHIEVEMENT-RELATED COGNITIONS, AFFECT, AND BEHAVIOR DURING LEARNING OF A GOLF-PUTT

By

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TABLE OF CONTENTS

Page

ACKNOWLEDGEMENTS.. ii

LIST OF TABLES.. v

LIST OF FIGURES... vi

ABSTRACT.. vii

CHAPTERS

1 INTRODUCTION.................................. 1

The Achievement Goal Model.................... 3
Application of Instruction to Beginners....... 5
An Essential Component of Sport............... 6
A More Valid Application for Instruction...... 7
Statement of the Problem...................... 10
Hypotheses.................................... 10
Definitions of Terms.......................... 14
Assumptions................................... 16
Significance of the Study..................... 17

2 REVIEW OF LITERATURE.......................... 20

Theoretical Framework......................... 20
Evidence for the Achievement Goal Model....... 27
Can Situational Cues Influence Goal Dispositions?............................. 35
Elite Performers.............................. 37
Person-Environmental Fit Theory.. 40
Unanswered Questions.......................... 43

3 METHODS....................................... 45

Participants.................................. 45
Tasks and Instruments......................... 46
Procedure..................................... 50
Design and Analysis........................... 54

4 RESULTS.. 57

Intrinsic Motivation.......................... 57
Attributional Style........................... 61
Perceived Ability............................. 65
Persistence................................... 66
Performance Measures.......................... 68
Manipulation Checks........................... 71

5 DISCUSSION, SUMMARY, CONCLUSIONS, AND IMPLICATIONS FOR FURTHER RESEARCH....... 72

Discussion.................................... 73
Distinctions with Previous Literature......... 81
Implications for the Achievement Goal Model... 83
A New Direction............................... 86
A Revised Model............................... 87
Practical Implications to Sport............... 94
Practical Implications to Education........... 99
Summary.......................................100
Conclusions...................................101
Future Directions.............................102

REFERENCES..106

APPENDICES

A INTRINSIC MOTIVATION INVENTORY..................115

B CAUSAL DIMENSION SCALE II.......................117

C GENERAL INSTRUCTIONS AND INFORMED CONSENT FORM .119

D GOAL STRATEGY FOR THE DIFFERENT GROUPS..........121

E PRACTICE SESSION INSTRUCTIONS...................128

F COMPETITIVE GAME INSTRUCTIONS...................129

G POST MANIPULATION QUESTIONNAIRES................130

BIOGRAPHICAL SKETCH....................................132

LIST OF TABLES

Tables page8

4.1 Perceived enjoyment: means and standard deviations for goal groups.................. 59

4.2 Perceived effort: means and standard deviations for goal groups.................. 61

4.3 Perceived stability for failure: means and standard deviations for goal groups......... 63

4.4 Perceived external control for failure: means and standard deviations for goal groups..... 65

4.5 Perceived ability: means and standard deviations for goal groups.................. 66

4.6 Mini-golf putting performance: means and standard deviations for goal groups......... 69

4.7 Mean radial error (MRE): means and standard deviations for goal groups......... 70

4.8 Bivariate radial error (BVE): means and standard deviations for goal groups......... 70

4.9 Subject-centroid radial error (SRE): means and standard deviations for goal groups..... 71

LIST OF FIGURES

Figure page

2.1 Achievement Goal Model........................ 24

4.1 Change in perceived enjoyment as a function of training................................ 58

4.2 Change in perceived effort as a function of training................................ 60

4.3 Change in perceived stability of failure in putting as a function of training........... 62

4.4 Change in external control in putting as a function of training........................ 63

4.5 Reported amount of putting practice outside of class during training.................... 67

5.1 Revision of achievement goal model............ 88

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This study compared the effects of a multiple goal strategy to individual goal strategies on achievement patterns during the learning of a golf-putt. Seventy-two beginning golfers were randomly assigned to one of four conditions: mastery-outcome (MO) goal strategy, mastery (M) goal strategy, outcome (O) goal strategy, and no goal strategy (Control). Each were instructed to implement assigned goals strategies during both mastery and competitive stages of putting. Training lasted six weeks. Measures of attributional style, intrinsic motivation, persistence, and performance were taken prior to and after training.

Analysis of data indicated that participants in the O group became significantly more maladaptive in their attributions toward putting. In contrast, the MO group began to explain putting outcomes with more effective attributions. The M and Control groups did not change in attributional patterns.

This study also found that participants in the MO group significantly increased in their intrinsic motivation toward putting. There were no significant changes in intrinsic motivation with the other three groups.

Important behavioral differences were also revealed. The MO group reported that it practiced significantly more than the other three groups during training. In addition, the MO group demonstrated an increase in putting performance during the intervention period. The other groups did not change in putting performance.

Overall, these results suggested that participants given a multiple goal strategy benefitted more in achievement than those given individual goal strategies. Suggestions are made to revise the current achievement goal model to incorporate a multiple goal strategy as most effective. Furthermore, these findings have implications to instructors concerning which goals should be emphasized during the learning of a sport skill.

CHAPTER 1

INTRODUCTION

Motivation is considered central to understanding individual differences in sport achievement (Roberts, 1992; Singer, 1984). Some people will exhibit adaptive motivational patterns such that they exert appropriate effort for success, persist through adversity, and enjoy the challenge. Others will demonstrate maladaptive motivation patterns. That is, at the first signs of failure, they will cease trying and lose interest in the activity. Thus, a challenge for sport researchers has been to understand the underlying components influencing individual variations in motivational patterns.

Sport psychology researchers have used goal-setting as one theoretical framework for understanding motivation and achievement. The concept of goals is characteristically used in two ways in the sport psychology literature. One approach describes goals as a performance standard in quantifiable terms, to be reached over a given period (e.g., Boyce, 1992; Weinberg, Bruya, & Jackson, 1985). Success and failure are defined in relation to this specific standard. Furthermore, theorists have proposed that effort and attention will be directed toward successful achievement of the established goal (i.e., Locke & Latham, 1990; Weinberg, 1992).

A more recent approach describes goals in "qualitative" ideology and is evident in the achievement goal literature (Duda, 1993; Roberts, 1992). From this perspective, goals define success and failure for the performing situation as well as delineate the intentions and purposes for reaching these aspirations (Maehr & Nicholls, 1980). Furthermore, according to this literature, the goals selected by an individual will influence subsequent achievement-related cognitions, affect, and behaviors (Ames, 1984; Ames & Archer, 1988; Dweck, 1986; Maehr, 1984; Nicholls, 1984).

Sport psychologists have suggested that the achievement goal model holds great promise for furthering the understanding of how goals may influence achievement in sport (i.e., Duda, 1992; Roberts, 1992; Weiss & Chaumeton, 1993). In addition, researchers have used the achievement goal model to discern the most effective technique for enhancing the motivation to learn in beginners (Shakarian, 1995; Treasure, 1994).

Nevertheless, some theorists (Nicholls, 1992; Roberts, 1992) suggest that to adequately understand how motivation functions in sport, the dynamics of sport must be acknowledged. Previous investigations concerning the most conducive environment and/or instructional strategies for enhancing motivation appear to have neglected an integral component of sport, principally competition. However, competing against others is one of the defining features of sport (Coakley, 1986). Thus, within an achievement goal framework, this dissertation will investigate the motivational patterns of beginners during the learning of a sport task when the essential elements of sport are considered.

The Achievement Goal Model

The achievement goal model is based on two underlying tenets: (1) people desire to demonstrate competence in achievement settings and (2) the achievement goals selected by the individual are the basis for this competence evaluation (Ames, 1984; Maehr, 1984; Nicholls, 1984).

According to this model, there are two types of goal strategies that an individual may adopt in an achievement situation: mastery and outcome (Jackson & Roberts, 1992). These goals have also been labeled task and ego (Nicholls, 1984), mastery and ability (Ames, 1984), mastery and competitiveness (Gill & Deeter, 1988) and learning and performance (Dweck & Leggett, 1988). For the purpose of conceptual clarity, the mastery goal and outcome goal term will be used throughout this dissertation to represent the two distinct achievement perspectives.

Individuals who possess a mastery goal strategy are oriented toward developing new skills and improving their level of competence. An individual who adopts a mastery goal poses the question, "How can I master this task?" (Elliot & Dweck, 1988). Achievement is primarily determined on self-referenced standards. In this sense, competence is based on the comparison to one's previous performance level (Ames, 1992; Maehr, 1984, 1989; Nicholls, 1984, 1989).

Alternatively, the demonstration of superior ability over relevant others is the primary concern for people who have adopted an outcome goal strategy (Jackson & Roberts, 1992). With this orientation, evaluation of ability is based on norm-referenced standards (Ames, 1992; Maehr, 1984, 1989). Especially important to an outcome orientation is public recognition that one has done better than others, or performed in a superior manner (Dweck & Leggett, 1988).

Proponents of the achievement goal model have also proposed that the two goal perspectives are orthogonally interdependent (i.e., Nicholls, 1984; Duda, 1992). That is, individuals can possess either one goal orientation or adopt both types concurrently in achievement settings.

The study of the achievement goal perspective applied to sport situations has demonstrated similar relationships among goal strategies and achievement-related cognitions and behaviors with those exhibited in educational settings (e.g., Duda, 1992; Duda & Nicholls, 1992; Hall, 1990; Solomon & Boone, 1993; Treasure, 1994). Research findings indicated that individuals who focused predominately on mastery goals exhibited adaptive motivational patterns, such as an exhibition of a high intrinsic interest in the activity, persistence in the face of continued failure, and making attributions conducive to maintaining long-term sport achievement. These patterns were demonstrated regardless of perceived competence level.

Desirable motivational patterns were also found for those who were outcome-oriented and had a high level of confidence in their ability. However, performers who were predominately concerned with outcome goals and began to doubt their ability exhibited maladaptive achievement cognitions and behaviors. This included a reduction in persistence and perceived ability, devaluation of the task, and a diminishment of interest toward the task.

Application of Instruction to Beginners

Because beginners usually possess low levels of perceived ability, researchers have suggested that instruction in sport skills for novices should focus on mastery goals, and downplay performance outcomes (e.g., Roberts, 1984; Shakarian, 1995; Treasure, 1994; Weinberg & Gould, 1995). Specifically, instruction should emphasize individual improvement, personal bests, and skill development. Competition or competitive games that can demonstrate such outcomes as winners and losers should be avoided. This type of learning environment should promote the most adaptive motivational patterns in beginners, irrespective of perceived ability.

Interestingly, only one study has tested these postulations within the sport context. Treasure (1994) taught beginning soccer players in either a mastery-oriented or outcome-oriented situation. In the mastery environment, evaluation was based on personal improvement, rewards were provided privately for skill progression, and the focus of instruction was on skill progression. Conversely, evaluations in the outcome-oriented environment were normative-based, awards for improvement were made public, and beating others in the class was emphasized more so than learning the task.

The results revealed that novices who learned soccer skills in the self-improvement environment demonstrated more adaptive motivational patterns conducive to long-term achievement. These individuals exhibited more interest in soccer, developed a higher perception of their ability, and were more positive about soccer than novices who learned in the outcome-oriented situation.

An Essential Component of Sport

Although Treasure (1994) supported the proposition that a mastery environment promoted more adaptive motivational patterns than an environment concerned with the demonstration of superior ability, his study may have neglected an essential component of learning sport skills. The development of competence in a sport task may involve learning within both a mastery and a competitive environment (Davies & Armstrong, 1989).

According to social comparison theory (Festinger, 1954), individuals will seek out information in order to accurately assess their abilities. One way to achieve this assessment is by comparing abilities with either an objective criterion or social-based standard (Festinger, 1954; Sage, 1986). Competition is a means of comparing skills against a standard and thereby provides important information about competence (Scanlon, 1988).

In line with this desire for comparison, beginners may be drawn to some form of competition in order to derive an accurate assessment of ability level. Thus, novices may try to master the task as well as use their newly acquired skills to compete against relevant others.

A More Valid Application For Instruction

Considering that competition may play an important role in learning sport skills, a logical question is whether the emphasis of only mastery goals is the most effective method for motivating beginners to learn sport skills. There may be more desirable training methods which incorporate the dynamics of the sport environment.

One way to gain insight into what might be the best instructional technique for beginners is to analyze what experts do in similar activities. Cognitive psychologists (e.g., Chi, Glaser, & Farr, 1988; Chase & Simon, 1973) as well as motor behaviorists (e.g., Abernethy & Russell, 1987; Goulet, Bard, & Fleury, 1989; Nougier, Ripoll, & Stein, 1989) have adopted this paradigm to investigate factors contributing to high level achievement.

Sport psychology researchers interested in understanding how goal orientations influence motivation have typically used low skilled individuals. Although existing literature concerning the goal strategies of elite performers is sparse, it appears that high level performers may possess a different goal orientation than lesser skilled individuals.

Various researchers have reported that elite athletes emphasize both mastery and outcome goals during a competitive season (e.g., Gill & Dzewaltoski, 1988; Jackson & Roberts, 1992; Vealey & Campbell, 1988). However, one type of goal may be more important than another depending on the particular situation. Specifically, Jackson and Roberts (1992) have proposed that expert performers may emphasize a mastery goal strategy during practice, but shift to an outcome focus during competition. Furthermore, they have suggested that one critical component to successful sport performance is the selection and timing of the most appropriate goal strategy for a given situation.

These findings suggest that the goal strategies of successful performers may be best understood within the context of the person-environment fit approach (e.g., Caplan, 1987; Lerner, 1983; Magnussen & Allen, 1983; Pervin, 1968). That is, high level athletes seem to possess the ability to match their goals according to the demands of the achievement setting.

Therefore, should beginners be taught both goals simultaneously and match them to the demands of the achievement setting? Should they be taught to use a mastery goal strategy during practice and an outcome goal strategy during competition? This appears to be how experts adapt to the dynamics of the sport environment. However, the current conceptual viewpoint is that a focus on only mastery goals should be most effective for beginners to learn sport skills.

Singer (1980) has stated that no single strategy is consistently appropriate under all conditions. Perhaps the best method to enhance motivation in beginners emphasizes both types of goal strategies as well as educates when to use each. Some researchers have reported favorable cognitive, affective, and behavioral outcomes when the goals of the individual were congruent with the achievement situation (e.g., Caplan, 1987; Harackiewicz & Sansone, 1991; Sansone, Sachau, & Weir, 1989; Wentzel, 1989).

The proponents of the achievement goal model (i.e., Duda, 1992; Nicholls, 1984, 1989) have postulated that individuals can possess both goals simultaneously. However, the majority of studies conducted in sport settings have only discriminated differences in motivational patterns when people adopt either a mastery goal or an outcome goal strategy (e.g., Burton, 1989; Duda, Fox, Biddle, & Armstrong, 1992; Hall, 1990; Solomon & Boone, 1993). A comparison of a multiple goal strategy to single goal strategies should make a valuable contribution to the literature. Therefore, the primary focus of this study was to determine the influence on motivational patterns when novices are taught to use both goal strategies as compared to either a mastery or outcome goal strategy. An attempt was made to determine differences in achievement-related attributions, perceived ability, affect, persistence, and performance as a function of different goal strategies.

Statement of the Problem

In this study, a golf-putting task was used with beginners to compare the effects of three different goal strategies (mastery (M), outcome (O), mastery-outcome (MO)) on (1) intrinsic motivation; (2) achievement-related cognitions (attributions and perceived ability); and (3) achievement-related behaviors (persistence and performance).

Hypotheses

The following research hypotheses were tested:

1. Participants in the MO group should exhibit a significant increase in intrinsic motivation toward the task when comparing their pretest and posttest scores on the Intrinsic Motivation Inventory (IMI; McAuley, Duncan, &

Tammen, 1989). Specifically, participants in the MO group should exhibit increases in task enjoyment, report increases in effort toward the task, and report a decrease in tension.

It can also be argued that these hypotheses are a function of the differences in perceived control over the learning environment for the goal strategy groups. Central to the cognitive evaluation theory is that intrinsic motivation should heighten as a result of an increase in perceived control (Deci & Ryan, 1985). The MO group possesses a goal strategy that can match the changing demands of the learning situation. In turn, this should promote a greater sense of command over the learning environment.

In addition, it is hypothesized that participants in the M group should exhibit greater increases of intrinsic motivation than those in the O group when comparing the posttest scores. Achievement goal theorists have argued that performance and mastery goals should affect intrinsic motivation through the same processes that influence achievement behavior. Consequently, they have predicted that mastery goals will promote intrinsic motivation by fostering challenge seeking persistence and task involvement (Dweck, 1986; Duda, 1992; Nicholls, 1989). On the other hand, performance goals should undermine intrinsic motivation by generating evaluative pressure or anxiety about performance (Nicholls, 1989; Duda, 1992). Sport researchers have supported these predictions in that participants who adopted mastery goals demonstrated greater intrinsic motivation than those focused on outcome goals (e.g., Duda, 1992; Duda et al., 1992).

2. The participants in the MO strategy group should exhibit a significant increase in effective attributional patterns concerning the recalled putting experience. When comparing their pretest and posttest scores on the Causal Dimension Scale-II (CDS-II; McAuley, Duncan, & Russell, 1992), the MO group should make attributions that are becoming more internal, unstable, and less externally controllable for recalled putting failures. Ames and Archer (1988) reported that students who adopted both mastery and outcome goals demonstrated an adaptive attributional pattern.

According to the postest scores, it is also hypothesized that participants in the M group should make more internal, unstable, and personally controllable attributions for the recalled failure than those in the O group. This postulation has been previously supported in the sport literature (e.g., Hall, 1990)

3. It is predicted that subjects in the MO group will demonstrate a significant increase in perceived ability. This prediction is congruent with the study by Hom, Duda, & Miller (1993) that found the highest level of perceived

ability in those sport participants who adopted both mastery and competitive goals.

It can also be argued that the perception of being well-qualified should greatly enhance perceived ability (Feltz, 1992). Those individuals who have multiple goals should have a perception of being well qualified for the changing dynamics of the learning situation.

According to their posttest scores, it is also predicted that participants in the M group will demonstrate greater gains in perceived ability than subjects in the O strategy group. Both Burton (1989) and Hall (1990) found that the adoption of mastery goals promoted greater increases in perceived ability than the adoption of outcome goals.

4. According to the time on task during the free period, it is predicted that the MO group should demonstrate a significant increase in persistence due to training. Duda (1988) has reported that sport participants who emphasized both mastery and social comparison goals demonstrated the a high level of of persistence (i.e., years participated).

It is also hypothesized that the MO group will report the most time spent practicing putting outside of class during the intervention period.

It is also postulated that subjects in the M group will exhibit more time on task during the free time period than those in the O group when comparing their posttest scores. This in accordance with the findings of Rudisill (1989).

5. Participants using the MO strategy are expected to demonstrate a significant increase in performance due to training. Singer and colleagues (Singer et al., 1994; Singer, Lidor, & Cauraugh, 1993) have shown that beginners performed better when the strategies of experts were adopted. The composite goal strategy for the MO group was developed based on the orientation profile of elite athletes (e.g., Jackson & Roberts, 1992). Thus, it is expected for the target putting task that the mastery/outcome group should demonstrate a decrease in Mean Radial Error (MRE), Bivariate Error (BVE), and Subject-Centroid Radial Error (SRE).

When comparing their scores across trials, it is also predicted that participants in the MO group should demonstrate a significant increase in performance (i.e., less total score) on the mini-putting task.

Furthermore, it is hypothesized that the mastery goal group (M) should demonstrate less RE, BVE, and GRE than the outcome goal group (O) on the target putting task. It is also predicted that the M group should show greater increases in performance than the O group in the mini-putting task. These predictions are congruent with other sport research that has demonstrated the benefits to performance when mastery goals are adopted (Hall, 1990).

Definitions of Terms

To standardize the terminology in the present study, the following terms are defined:

Adaptive Attributional Style refers to explaining failure to internal, unstable, and personally controllable causes such as effort (Weiner, 1988).

Adaptive Motivational Pattern is characterized by high interest with the task, continued persistence in the face of obstacles, and maximal performance (Duda, 1992, 1993).

Bivariate Variable Error (BVE) refers to the measure of intra-subject variability for two-dimensional error scores (Hancock, Butler, & Fischman, 1995). BVE can be defined as a measure of the inconsistency of responding and is the 2D analog to Variable Error (VE).

Goal Strategy is how the individual construes his or her level of competence (Duda, 1992; Elliot & Dweck, 1988). A goal strategy is how the individual evalauates success and failure in the achievement setting.

Intrinsic Motivation is the participation in an activity for enjoyment; external rewards such as praise or material goods are not necessary (Deci & Ryan, 1985).

Maladaptive Attributional Style refers to attributing failure to internal, stable, and uncontrollable causes such as ability (Weiner, 1988).

Maladaptive Motivational Pattern corresponds to a diminishment of effort and persistence in the face of failure, a decrease in the enjoyment of the task, and performance impairment (Duda, 1992, 1993).

Mastery Goal Strategy refers to the perception of demonstrated competence that is based upon self-reference standards (Nicholls, 1984).

Mastery-Outcome Goal Strategy is an approach the determines competence based upon both self-standards and norm-referenced information.

Mean Radial Error (MRE) is a two-dimensional error score of overall accuracy in performance (Hancock et al., 1995). This measure is an indication of how far from the desired target a participant's responses were on the average. MRE is the 2D analog to the Absolute Error (AE).

Persistence is goal directed behavior continued over time (Roberts, 1992). It has also been operationally defined as time on task during a free-time period (Rudisill, 1989).

Outcome Goal Strategy refers to norm-referenced based assessment of competence (Nicholls, 1984).

Subject-Centroid Radial Error (SRE) conveys information about the magnitude of bias over multiple shots from a single subject (Hancock et al., 1995). This measure is appropriate for answering questions about where, on the average, a subject's responses tend to be with respect to the center of the target. SRE is considered the 2D analog of Absolute Constant Error (ACE)

Assumptions

For the purposes of this investigation, the following assumptions are made:

1. Participants were selected from golf classes and therefore should be motivated to learn and apply the goal strategies toward the putting task.

2. The formulation of the goal strategies is based on previous definitions from the achievement goal literature. Thus, it is expected that the goal strategies accurately reflect distinct goal orientations.

3. Previous studies have demonstrated that the appropriate manipulation of the environment can alter goal predispositions when the situational/instructional cues are salient and powerful (Ames & Archer, 1988; Treasure, 1994). It is expected that the strategies were strong enough to override goal predispositions.

4. The dependent variables (i.e., MRE, SRE, BVE) will provide appropriate quantitative information for the target putting task.

5. The dependent variable, time on task during the free period, was an appropriate measure of persistence.

Significance of the Study

The majority of studies conducted in sport settings have discriminated differences in motivational patterns when an individual possesses either a mastery or an outcome goal (e.g., Burton, 1989; Duda et al., 1992; Hall, 1990; Solomon

& Boone, 1993). The present study was one of the first to examine the influence on achievement patterns of beginners when both a mastery and outcome goal strategy are adopted simultaneously in a sport environment. The findings address important theoretical and applied issues involving the impact of goals upon sport participation. Specifically, the findings of this study will be helpful in two ways: (1) to enhance the development of the current achievement goal model, and (2) to demonstrate a more effective instructional strategy for beginners to use when learning sport skills.

Proponents of the achievement goal model have suggested that the adoption of a mastery goal is the most effective way to evaluate competence in achievement settings (Duda, 1993; Nicholls, 1984; Roberts, 1992). If it is found that a MO composite strategy elicits more adaptive cognitions, affect, and behaviors than a mastery strategy, then it is possible to conclude that a composite goal strategy should be added to the model as a more effective means to evaluate competence. That is, it can be concluded that adopting both goal orientations simultaneously will promote the most adaptive achievement patterns.

Results of this study may also clarify how the instructional environment should be constructed. Proponents of the achievement goal approach have suggested that instructors should create a learning environment for beginners in which the importance of mastery goals are conveyed and their adoption facilitated (e.g., Ames, 1992; Shakarian, 1995). If the findings of this study support the benefits in motivational patterns of a composite goal strategy, then it may be concluded that instructors should try to educate beginners to acquire both goal orientations simultaneously. Teaching mastery goals would be only a part of the instructional program.

In conclusion, two important contributions are expected from the present investigation. First, a third goal strategy (mastery/outcome) should be included in the achievement goal model as an additional way to evaluate competence in achievement settings. Second, instructors should create a learning environment for beginners in which both mastery and outcome goals are facilitated and adopted.

CHAPTER 2

REVIEW OF LITERATURE

To provide a comprehensive overview of relevant research, this chapter is organized in the following manner. The first section describes and delineates the components of the achievement goal model. Education and sport relevant research pertinent to the model is presented next. The third section includes a discussion concerned with understanding the malleability of goal orientations. Research pertinent to the goal orientations of elite performers follows. The next section describes an additional motivational perspective, the person-environment fit theory. The effectiveness of an alternative goal approach is offered in the last section.

Theoretical Framework

Derived extensively from educational literature (e.g., Ames 1987; Ames & Ames, 1981; Ames & Archer, 1988; Dweck, 1986; Maehr 1984; Nicholls 1984), the achievement goal model posits two principle tenets: (1) individuals will try to maximize the demonstration of high ability and conceal the exhibition of low ability, and (2) the achievement goals selected by a person are the basis for competence evaluation. Furthermore, the determination of competence (or incompetence) influences subsequent achievement-related cognitions, affect, and behaviors (e.g., Dweck, 1986; Dweck & Leggett, 1988; Elliot & Dweck, 1988; Maehr & Nicholls, 1980). Thus, according to this literature, the goals selected by an individual will ultimately influence whether adaptive or maladaptive cognitions and behaviors are exhibited in an achievement setting (e.g., Ames, 1984; Ames & Archer, 1988; Dweck, 1986; Maehr, 1984; Nicholls, 1984).

Goals, Perceived Ability, and Behaviors

The achievement goal perspective purports interrelationships among goals, perceived ability, and behaviors (Ames, 1984; Duda, 1993; Elliot & Dweck, 1988). It is hypothesized that a focus on mastery goals promotes _adaptive_ achievement-related cognitions, affect, and behaviors, regardless of perceived ability. Specifically, those who focus on mastery goals should make attributions conducive to long-term achievement, have higher perceived competence in the task, and exhibit more enjoyment for that activity. These adaptive cognitions and affect should correspond with choosing tasks that are more conducive to maximal improvement as well as a greater demonstration of persistence, especially under continued failure. Furthermore, this model predicts that these adaptive cognitions and behaviors should increase the probability of improved task performance.

The achievement goal perspective also predicts that desirable achievement-related cognitions, affect, and behaviors will be demonstrated for those individuals who are outcome-oriented and have high perceived ability (Duda, 1993; Roberts, 1992). It has been suggested, however, that the perception of high ability in norm-referenced situations is very fragile (Dweck, 1986). When individuals begin to doubt their ability, the achievement goal perspective predicts that individuals who focus on outcomes may become vulnerable to maladaptive cognitions, affect, and behavioral patterns (Nicholls, 1984; Roberts, 1984). These patterns are characterized by a diminishment of task enjoyment, a cessation of effort and persistence when obstacles arise, and possibly performance decrements.

The achievement goal model also postulates that situational factors can directly influence the adoption of a particular goal orientation (Roberts, 1992; Nicholls, 1989; Duda, 1992). When environments are marked by interpersonal competition, public evaluation and normative-based testing, an outcome orientation is likely to be adopted. Conversely, situations characterized by skill progression and an emphasis on learning from ones' mistakes should tend to lead to a mastery orientation. Furthermore, proponents of the achievement goal model have proposed that when environmental cues are strong enough they will override goal predispositions (Roberts, 1992, Treasure, 1993). Thus, under strongly competitive environments, a person with a low perceived ability should exhibit maladaptive achievement patterns, whereas performers in a mastery-oriented environment should demonstrate adaptive achievement, regardless of perceived ability (Roberts, 1992). These predictions are graphically illustrated in Figure 2.1.

Predictions of the Achievement Goal Model

This theory makes specific predictions concerning how mastery and outcome goal orientations influence subsequent achievement-related cognitions, affect and behaviors. The following section describes in more detail the reason(s) for these differences.

Intrinsic motivation. Nicholls (1984, 1989) contends that a task should be viewed as more intrinsically satisfying when individuals (i.e., mastery-oriented persons) perceive that participation in the activity can enhance competence. Further, Nicholls conjectured that with a mastery goal focus, achievement strivings are experienced as a means to an end, prompting feelings that are more intrinsically satisfying.

In contrast, when individuals are consumed in demonstrating superiority, a decrease in intrinsic interest in the actively should result (Dweck, 1986). Pleasure in task participation becomes secondary for those who are continually trying to demonstrate their superiority over others. Furthermore, the necessity to constantly demonstrate

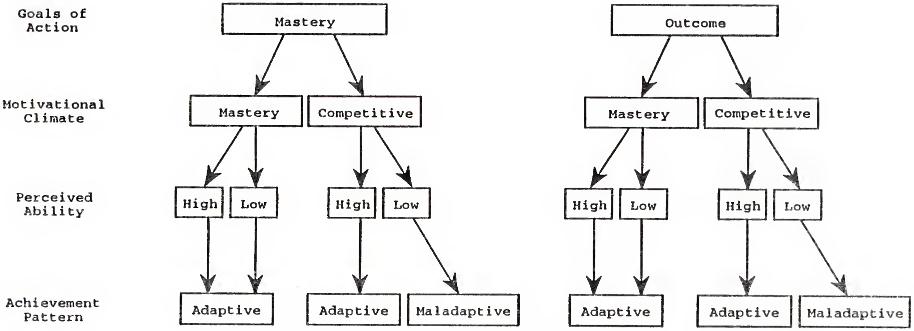

Figure 2.1 Model of achievement goal theory (Roberts, 1992).

superiority may begin to be viewed as controlling and foster an external locus of control (Duda, 1992). This in turn should promote a decrease in intrinsic motivation toward the task (Deci & Ryan, 1985; Singer, 1984).

Attributional patterns. The achievement goal theory proposes consistent relationships between the goals adopted and the attributional patterns made (Elliot & Dweck, 1988; Nicholls, 1984; Roberts, 1984). Those who focus on a mastery goal strategy perceive a direct covariation between effort and outcome. When success is determined, it is assumed that appropriate effort was initiated. However, under conditions of perceived failure, individuals who focus on mastery may believe that more effort is needed to achieve the desired goal (Roberts, 1984).

On the other hand, those individuals who are concerned with outcomes perceive a direct covariation between ability and outcome. Under conditions of perceived success, these individuals may assume that there was sufficient competence. Conversely, under failure, ability was insufficient. This perception may remain stable across similar performance settings (Weiner, 1985, 1988). Thus, those with low ability may perceive that a favorable outcome may not be possible at the present time or in the near future in similar achievement settings.

Perceived ability. Proponents of the achievement goal model purport that failure to reach a particular standard of performance should have little effect on perception of ability for mastery-oriented individuals because they attribute outcome to effort rather than ability (Covington & Omelich, 1979, 1984). In addition, a mastery goal orientation is predicted to foster the development of perceived ability because the focus is upon improving ability over time and not on the demonstration of ability (Elliot & Dweck, 1988; Nicholls, 1984, 1989).

Conversely, the achievement goal approach predicts that those who emphasize the demonstration of superiority may suffer a decrease in perceived ability over time (Dweck, 1986; Elliot & Dweck, 1988). With this goal intention, there is a constant probability of demonstrating incompetence (i.e., not everyone can win). Further, those who are outcome-oriented are frequently forced to evaluate themselves in terms of their rank (Elliot & Dweck, 1988). Those with low initial assessments may reinforce this modest level of competence.

Persistence. The achievement goal approach predicts a positive relationship between persistence and a mastery goal perspective (Ames, 1992; Maehr, 1984; Nicholls, 1984). Because mastery-oriented individuals attribute outcome to effort, they would believe that greater determination should activate and manifest a higher probability of success (Dweck & Leggett, 1988). This should lead to high levels of persistence in achievement settings, even under continued failure.

Conversely, an orientation based on the demonstration of being the best should promote a direct relationship between outcome and ability: Failure would imply a lack of ability. Under continued failure, those with low perceived ability may perceive that changes in persistence may not produce a desired outcome (e.g., Dweck & Leggett, 1988).

Evidence for the Achievement Goal Model

An impressive body of research in both academic as well as sport setting has provided support for most of the predictions advocated by the achievement goal model. The purpose of the following section is to describe studies that demonstrate the relationship among goal perspectives, cognitive mediators, and achievement.

Intrinsic Motivation

Studies conducted in education have demonstrated that there is a general decline in intrinsic motivation when students are focused on out-performing others. Conversely, a positive relationship has been found between a task learning environment and enjoyment (Ames, Ames, & Felker, 1977; Butler, 1987).

The research in sport has yielded similar results. For example, in a study by Duda, Newton, and Chi (as cited in Duda, 1992), the relationship between goal perspective and interest in tennis was investigated. Goal orientations were measured with the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda, 1992). This scale has been used extensively in the sport achievement goal literature as an assessment tool to classify individuals as either task-oriented or ego- oriented. Intrinsic motivation was assessed by the IMI (McAuley et al., 1989). The findings revealed that task orientation was positively related to enjoyment and effort, whereas ego orientation was inversely related to these two variables.

In addition, other studies have demonstrated a significant negative relationship between task orientation and the tendency to feel boredom in youth sport (Duda et al., 1992). Specifically, task orientation was negatively correlated with the reported experience of boredom in youth soccer players, whereas an outcome orientation was positively related to boredom. Similar findings have been found with basketball players (Seifrez, Duda, & Chi, 1992).

Attributional Patterns

In general, investigations in the academic context have demonstrated that a concern with self-improvement may lead to attributional patterns conducive to adaptive achievement strivings, whereas an emphasis on outcomes can promote maladaptive attributions (e.g., Ames 1984; Diener & Dweck, 1978, 1980). For example, Ames (1984) assigned children to either a competitive goal condition or a mastery learning condition. In the competitive goal situation, children were presented puzzles and informed that this would be a contest to see who can solve the greatest number of each. In the mastery learning condition, children worked individually and were instructed to solve as many puzzles as possible.

Results revealed that children in the competitive condition attributed their performance more to ability, whereas children in the mastery condition were more likely to explain performance to effort. Ames (1984) concluded that children in the mastery condition used attributions more conducive to long-term achievement.

Research in sport settings have also demonstrated that a focus on mastery goals promoted the most adaptive attributions. For example, Hall (1990) asked participants to perform on a stabilimeter in either a mastery (i.e., focus on self-improvement) condition, or in a competitive situation (i.e., focus on being better than others in class). Furthermore, perceived ability was manipulated by providing feedback related to norm-based standards after baseline trials. Specifically, half the subjects were told they performed in the bottom 20% and the other half were informed that they performed in the top 20%.

Those in the competitive structure who had low perceived ability reported that they did try as hard as the subjects of the same ability levels in the task mastery condition. In addition, participants who doubted their abilities and performed under competitive conditions attributed successful performances less to ability than those in the task mastery condition. Hall (1990) concluded that people who doubt their physical skill and are placed in a competitive environment may be more likely to exhibit a maladaptive attributional pattern.

Duda and Chi (as cited in Duda, 1992) examined the relationship between a mastery or competitive condition and the performance attributions made for a basketball task. Participants (college age males) were either instructed to play against an expert confederate in a 12-point game (i.e., competitive condition), or to play one-on-one basketball for 10 min and told that there would be no winner or loser (i.e., mastery condition). However, unknown to the subjects, scores were recorded by an observer. Immediately following the game, the participants rated the degree to which they perceived performance to be a function of how hard they tried, perceived ability, task difficulty, and lucky breaks.

Findings supported the predictions of the achievement goal approach. Losers in the competitive condition were less likely to attribute their performance to the amount of effort exerted as compared to losers in the mastery condition. Further, losers in the competitive condition attributed more lucky breaks to winners than losers in the task condition. Duda and Chi concluded that competitive conditions are linked to the tendency to minimize the role of effort when faced with failure, whereas a task mastery environment promotes attributional patterns conducive to successful sport achievement.

Perceived Ability

In the academic environment, prior research has supported a consistent negative relationship between perceived competence and an outcome goal orientation. For example, Jagacinski and Nicholls (1984) asked students to envision themselves learning Italian either for enjoyment (i.e., mastery condition), or in order to get a competitive job position (i.e., competitive condition). Results revealed that learning under an imagined mastery orientation produced the highest evaluations of competence. Additional studies conducted in classroom settings have also demonstrated that children's self-evaluation of their ability are lower when they either focused on winning, outperforming another, or surpassing some normative standard, than when the focus was on self-improvement (e.g., Ames, 1984; Ames & Archer, 1988).

Sport-related studies have demonstrated very similar findings to those conducted in school situations. For instance, Burton (1989) investigated the effect of a 5-month goal setting program on perceived competence among male and female intercollegiate swimmers. Training was targeted to teach athletes to emphasize mastery goals (i.e., personal performance standards) and to downplay winning and performance times. Results revealed that swimmers who participated in the goal setting program had higher perceived ability than another swim team that was used as a control group.

In the Hall (1990) study, a significant positive relationship between perceived competence and a mastery goal perspective was also discovered. The participants who performed under competitive conditions expressed lower expectations and demonstrated lower perceived ability than those who performed in the self-improvement conditions. Also, those performing in the competitive conditions who perceived their ability as high in the beginning began to doubt their ability as the experiment progressed.

Persistence

Studies in education have verified that a mastery orientation is positively related to higher levels of task persistence (e.g., Diener & Dweck, 1978, 1980; Licht & Dweck, 1984). For example, Diener and Dweck (1980) asked sixth and seventh grade school children to think out loud during an anagram problem solving task. However, success and failure were manipulated so that the children would succeed on the first four trials and fail on the subsequent four. It was found that after subsequent failures, mastery-oriented subjects continued to persist much longer with the task than the other children.

Dropping out of sport has been used as one criterion measure to investigate persistence in sport (e.g., Burton & Martens, 1986; Roberts, 1984). Sport studies using this as a measure of persistence have demonstrated a negative relationship between adoption of mastery goals and sport withdrawal. For example, Duda (1988) found that high school intramural students who endorsed a mastery conception of success continued in sport significantly longer than those who evaluated their competencies in relation to their peers. In addition, Whitehead (1986) found that youngsters who dropped out of British sport clubs were more concerned with demonstrating superiority over their peers.

Time on task has also been used as a measure of persistence in sport studies. Researchers have demonstrated a positive relationship between a focus on mastery goals and time on task (Hall, 1990; Rudisill, 1989). For example, Rudisill (1989) assigned participants to one of four goal setting conditions (i.e., mastery, competitive, self-set, control) for a stabilimeter task. In the task mastery condition, participants were assigned goals that reflected a self-improvement measure (e.g., improve 20% above baseline). In the competitive condition, they were assigned goals based on a comparison group (e.g., improve 20 % above norm-referenced standards). In the third condition, students set their own goals. In the fourth assignment, students were not instructed about goal setting.

Persistence was operationally defined as the time spent on the stabilimeter during a 3 min free time period in which the participants could opt to practice, sit, or engage in another activity such as reading. Results revealed that those in the mastery goal condition persisted longer and attributed their performance to more controllable factors than students in the other three goal setting conditions.

Performance

Although some researchers (e.g., Roberts, 1992; Treasure, 1994) have argued elsewhere that adaptive motivational patterns may not always be associated with successful achievement, other scholars have predicted that those who are interested in the task, attribute success to effort, and persist in the face of failure should have an increased probability for successful performances (e.g., Duda, 1992; Dweck, 1986; Hall, 1990).

Covington and Omelich (1984) investigated classroom performance and type of evaluation procedure. Students were informed that they would be assigned either to a competitive grading system or a mastery grading system for a psychology class. In the competitive condition, personal grades would be evaluated relative to others in the class. In the mastery grading condition, letter grades were determined by a preannounced criteria. Those students who were evaluated on a pre-set measure performed significantly better than those in the competitive condition. A positive relationship between a mastery-oriented learning environment and classroom performance has also been demonstrated elsewhere (e.g., Ames, 1984).

Solomon and Boone (1993) investigated the impact of student goal orientations on task choice and performance in a beginning tennis class. A system of contract grading was employed as a function of task selection, with more challenging tasks receiving higher points toward the grade.

Those students, who were mastery-oriented, selected more difficult tasks than those who emphasized outcomes. More important, choice difficulty was significantly related to skill improvement during the semester. Specifically, those who chose difficult tasks demonstrated greatest gains in performance. Solomon and Boone (1993) concluded that goal perspective may indirectly influence achievement in sport due to task choice. Other studies have also demonstrated a positive relationship between task orientation and increases in sport performance (e.g., Burton, 1989; Hall, 1990).

Can Situational Cues Influence Goal Dispositions?

A very important issue that should be addressed is whether goal predispositions are malleable within the structure of the achievement environment? Specifically, can a goal orientation change in response to the specific cues of the learning environment and/or by the instructions given to him or her by the teacher?

Researchers in this area has reported that when situational cues are powerful enough, goal predispositions may change. For example, Ames and Archer (as cited in Ames, 1992) investigated whether the introduction of TARGET would be able to induce a mastery goal orientation in students. Originally developed by Epstein (1989), TARGET is an acronym which refers to the structure of the environment based on six variables: task, authority, reward, grouping, evaluation, and timing. Briefly, in order to develop a mastery environment, the task should be individual and challenging, participants should be involved in the decision-making and leadership roles, rewards should be given individually, ability levels should be equally distributed within the learning situation, and there should be no time pressure on skill development.

With a sample of 77 elementary education classes (Grades 2-6), Ames and Archer found an increase in the adoption of mastery goals. That is, outcome-oriented students developed more of a mastery orientation as a result of the intervention.

Interestingly, only Treasure (1994) has investigated the possibility of changing goal dispositions by manipulating the structure of the sport situation. Children from a physical activity class (sixth and seventh graders) were placed into either a task mastery environment or an outcome-oriented situation for five weeks. The manipulations of these environments were based upon Epstein's TARGET model (Epstein, 1989).

Treasure (1994) concluded that situational manipulations overrode individual goal disposition.

Specifically, as determined by the scores on the TEOSQ, individuals who were initially outcome-oriented, and placed into the mastery condition, became more task-oriented after the intervention period. Conversely, those students who were task-oriented and placed into the competitive manipulation became more outcome-oriented.

These findings suggest that instructional cues have the potential of altering goal predispositions. If educators possess the capability to influence the goal strategies of a student, then it is very important to distinguish which goals are most conducive to successful achievement.

As previously described, the majority of goal perspective studies concerned with sport skills have supported the adoption of mastery goals for long-term achievement. However, participants in these studies have predominately ranged from novices to the moderately-skilled. Although investigations examining the goal perspectives of top-level performers are extremely sparse, it appears that they may possess a different goal orientation than lower-skilled participants.

Elite Performers

Gill and Dzewaltowski (1988) investigated the goal perspective of 100 intercollegiate athletes as compared with those of students enrolled in physical activity classes. The athletes were from a wide variety of sports, and many of them were nationally ranked in a Division I program. Goal perspectives were determined by the Sport Orientation Questionnaire (SOQ; Gill & Deeter, 1988). This scale assesses three dimensions of sport achievement orientation: (a) competitiveness, as reflected by such items as "I enjoy competing against others" and " I am a determined competitor", (2) win orientation, as reflected by such items as "winning is important and "I hate to lose", and (c) goal orientation, which is a concern with a personal standard of improvement, and reflected by items such as " I set personal goals for myself".

Two important differences between the groups were found. First, top-level performers scored significantly higher on the competitiveness dimension than lower-skilled participants. Second, athletes were also more oriented toward mastery as indicated by their scores on the goal orientation subscale. Thus, these findings suggest that highly skilled athletes are oriented more toward both competitive goals and mastery goals than individuals of lesser ability.

In a cross-cultural study conducted in Taiwan, Kang, Gill, Acevedo, and Deeter (1990) found similar results to those reported in the previous study. Participants were divided into three groups: international competitors, intercollegiate athletes, and non-athletes. All were requested to fill out the SOQ. International competitors exhibited the highest scores on both the competitive orientation subscale and the goal orientation subscale than the other two groups. Again, these findings indicated that elite athletes possess higher levels of mastery and outcome goal orientations than those of lesser ability.

Jackson and Roberts (1992) also examined the goal perspectives of top-level performers during a competitive season using a qualitative analysis. Athletes were asked to recall their best and worst sport performances and their associated thoughts of these performances. An outcome focus was operationally defined as any thoughts about winning, or what the outcome may be before or during the performance. Thoughts about process before or during the performance were categorized as a mastery orientation. The analysis revealed that elite athlete possess both types of goal strategies during a competitive season. Further, Jackson and Roberts (1992) concluded that the timing of the goal strategy was most critical to successful performance. That is, top-level athletes appear to have the capability to focus on mastery during practice, but then can switch to outcome goals in more competitive settings.

In summary, the goal strategies of high-level athletes may differ from novice performers in two significant ways. First, elite performers may possess multiple goal orientations, whereas usually novices will predominately focus on a single goal. Second, elite sport performers may have the ability to switch goal strategies according to the demands of the sport situation.

In line with this, the goal strategies of elite athletes may be best understood within the contexts of the person-environmental fit theory. According to this approach, successful performances as well as adaptive motivational patterns should arise when capabilities match the requirements of the environment (e.g., Ford, 1985: Hunt, 1975, Kelly, 1979; Lerner, 1983; Veroff, 1969). Thus, one reason why top-level athletes are successful may be due to their ability to match their goals to meet the demands of the dynamic sport situation.

Person-Environment Fit Theory

The person-environment fit theory purports that the congruence between individual characteristics and environmental demands promotes adaptive functioning (Hunt, 1975; Lerner, 1983). When the goals of the individual are congruent with the achievement situation, favorable affective, cognitive, and behavioral outcomes should result. Specifically, advocates of the person-environmental fit approach propose that good matches between people and environments should result in higher levels of intrinsic motivation (Harackiewicz & Sansone, 1991), satisfaction (e.g., Caplan, 1987; French, Caplan, & Harrison, 1982), persistence (e.g., Moos, 1987; Schneider, 1987), and achievement (e.g., Wentzel, 1989, 1991).

Intrinsic Motivation

Harackiewicz and Sansone (1991) have demonstrated that intrinsic motivation increased when the situational goals matched the goals of the individual. This study found that when instructional goals emphasized and matched the goals of the individual, intrinsic motivation was enhanced. Specifically, individuals who were highly achievement oriented enjoyed the task much more when there was a competitive emphasis placed on the learning situation. Conversely, there was a increase in intrinsic motivation for those who were low in achievement orientation and placed into a mastery learning situation. These authors concluded that matching goals to the achievement environment was an important mediator of intrinsic motivation.

Satisfaction

French, Caplan, and Harrison (1982) identified a relationship between person-environment fit and indices of work morale and strain. Specifically, depression tended to be lowest for employees with a good fit for job complexity and increased with both too little and too much complexity. Furthermore, too much or too little responsibility was associated with work-load dissatisfaction as well as anxiety and anger. Other studies have also reported an association between a lack of environmental fit and dissatisfaction within industrial settings (Caplan, 1987; French, Rogers, & Cobb, 1974).

Persistence

Attrition rate has also been shown to be a function of person-environment congruence (Schneider, 1987). People will leave settings when personal characteristics do not match up with the environmental demands and look for situations that are congruent with their abilities. For example, turnover and drop-out rate is high for newcomers in organizations, but not for oldtimers. Newcomers are looking for a better fit while old timers have found one (Schneider, 1987). The relationship between attrition rate and person-environment congruence has also been documented in both education (Pervin, 1968) and within industry (Mobley, 1982).

Achievement

Higher levels of achievement have been reported when individuals adopt multiple goals. For instance, Wentzel (1989) found that the students with the highest grade point average pursued such multiple goals as earning approval from others, trying to leaning new things, and to have fun. In contrast, the failure to conform to normative standards of the classroom uniquely characterized the least competent students. Wentzel (1989) concluded that classroom achievement was directly related to ability to pursue both self-referent goals as well as norm-based comparisons. In addition, it was concluded that the focus on multiple goals allows the individual to match the appropriate goal to the demands of the learning situation.

In summary, these studies suggest that individuals who have attributes (e.g., goals) that match the demands of the environment exhibit the most adaptive motivational patterns. In turn, this would suggest that students/athletes may benefit from an instructional program that assists in developing the ability to meet the demands of the achievement setting.

Unanswered Questions

Findings in sport settings have demonstrated that the adoption of an outcome goal strategy coupled with low perceived ability promotes maladaptive motivational patterns such a withdrawal of effort, a decrease in task interest, and a reduction in perceived ability. Because beginners may possess low levels of perceived ability, sport researchers (e.g., Roberts, 1984; Shakarian, 1995; Treasure, 1994; Weinberg & Gould, 1995) have suggested that instruction for novices should focus on mastery goals, and downplay performance outcomes. This should promote long-term achievement for everyone, regardless of perceived competence.

These conclusions, however, have been drawn from a subject pool consisted predominately of lower skilled athletes. Although existing research is limited concerning this topic, experts may possess a goal orientation quite different than their lower skilled counterparts. Specifically, researchers have shown that the orientation of advanced level performers includes both mastery and outcome goals (e.g., Gill & Dzewaltowski, 1988; Kang et al., 1990). Furthermore, it has been suggested that they may switch these goals to match the demands of the achievement setting (Jackson & Roberts, 1992).

Although the adoption of multiple goals is thought to promote adaptive motivational patterns in high level performers, very little is known concerning whether beginners in sport would benefit from such an approach. Perhaps, novices who are taught to adopt both goal orientations will benefit because they will have a goal strategy to match the demands of ever changing learning environment. So far, research in this area has only compared a mastery approach to an outcome strategy. A comparison of a multiple goal (i.e., mastery-outcome) strategy with these other types of strategies should make a valuable contribution to the literature.

To investigate this question, low skilled individuals in putting ability were given either a mastery goal strategy, an outcome goal strategy, or a mastery-outcome combination strategy. An attempt was made to determine which approach promotes the most adaptive motivational patterns in beginners. Measures on intrinsic motivation, attributions, perceived ability, persistence, and performance were taken.

CHAPTER 3

METHODS

In this experiment, the influence of different goal strategies on cognitive, affective, and behavioral measures related to a self-paced task were examined. The data from this investigation will provide a greater understanding of the general potential of different goal strategies on achievement.

Participants

Seventy-two college students (36 males and 36 females) enrolled in golf classes were asked to participate voluntarily in this study. Participants were randomly assigned to one of four goal strategy groups: mastery, outcome, mastery-outcome, and no goal. No prior knowledge about the nature of the study or the hypotheses were provided.

The number of participants assigned to each treatment were determined using Cohen's (1988) tables. The values for entry into the table were as follows: $\underline{a} = .05$ (level of significance), $\underline{u} = 3$ (k-1), $\underline{f} = .40$ (effect size), and a power of .80. Based upon the tables for these specifications, a value of $\underline{n} = 18$ was obtained. Thus, 18 participants (09 males, 09 females) were randomly assigned to each of the four groups. Because some researchers (e.g., Duda, 1988, Weinberg, Burton, Yukelson, & Weigand, 1993) have found that males are more competitive than females, gender was controlled for by randomly placing an equal number of males and females in each group.

From baseline scores on the mini-golf putting task, participants were matched and randomly assigned by skill (moderate and low) to the four treatment groups. Moderate skill was defined as falling within the top 50% of baseline scores and low skill was defined as placing in the bottom 50%.

Tasks and Instruments

The following tasks were used to assess changes in cognitions, affect, and behavior due to the goal intervention:

Intrinsic Motivation

The Intrinsic Motivation Inventory (IMI) was used to assess intrinsic motivation toward putting based on three subscales: (interest-enjoyment, tension-pressure, and effort-importance). Questions were modified to refer to putting (see Appendix A). Four items represented each dimension and a 7-point Likert scale were used to rate each. A total score for each of the three subscales was obtained by summing the responses to the individual items as follows: (a) interest-enjoyment - items 1, 7, 8 and 11, (b) tension-pressure - items 5, 10, 11 and 15; (c) effort-importance -

items 3, 4, 6, and 12. Therefore, each subscale can range from 4 to 28 points.

Recent work by McAuley et al. (1989) have provided evidence for the validity and reliability of the IMI when applied to sport and exercise settings. Alpha coefficients for each of the subscales were reported as the following: interest-enjoyment (alpha = .78); effort (alpha = .84); and pressure-tension (alpha = .68). The internal consistency of the overall scale has been reported with an alpha coefficient of .85.

Attributions

A modified version of the Causal Dimension Scale-II (McAuley, et al., 1992) was used to measure any changes in attributions due to the goal strategy manipulations (see Appendix B). In this questionnaire, respondents are asked to make personal attributions for an outcome, and then attributions are coded along causal dimensions. Included in this questionnaire was one open-ended question asking participants to recall a failure outcome from the most recent putting experience. Participants were then asked to explain reasons for this outcome (e.g., low ability, not practicing). Failure was defined as not performing up to personal expectations.

Following the question was 12 scaled questions rating the open ended questions in terms of four dimensions: external control, personal control, stability, and locus of causality. There were three items for each of these attributional dimensions and 9 point Likert scales was used for each item. A total score for each of the four subscales is obtained by summing the responses to the individual items as follows: (a) external control - items 5, 8, and 12; (b) personal control - items 2, 4, and 10; (c) stability - items 3, 7, 11; and (d) locus of causality - items 1, 6, and 9. Therefore, each subscale can range from 3 to 27 points. High scores on these subscales indicate that the cause is perceived as internal, unstable and controlled by personal factors and external factors.

Recent work by McAuley et al. (1992) have provided evidence for the reliability of the CDS-II when applied to sport and exercise settings. Alpha coefficients for each of the subscales were reported as the following: locus of causality (a = .67); stability (a = .67); and personal control (a = .79), and external control (a = .82).

Perceived Ability

A 4-item questionnaire adapted from previous work (Duda & Nicholls, 1992) was used to assess perceived putting ability. The four questions were: (1) "I am more able in putting than most other students in class"; (2) "I am skilled at putting"; (3) "I will score better on a putting skills test than most people in class"; (4) "I am a good putter". Participants were asked to rate these questions on a Likert scale from 1 (strongly disagree) to 7 (strongly agree). High scores indicated high perceived ability.

Persistence

The amount of time spent putting in seconds during the free period was used as one indication of persistence. Rudisill (1989) has also used this measure to determine persistence.

Persistence was also assessed with a self-report measure. Specifically, participants were asked to calculate the amount of time they spent practicing putting outside of class during the semester. This question was placed on the manipulation check questionnaire (see Appendix G).

Mini-golf Putting Task

For this task, participants putted individually to nine different holes designated by the experimenter. The goal of this task was to achieve the lowest score as possible. The experimenter kept individual scores and these were used as performance measures.

It should be noted that golf putting was selected for this experiment because this sport skill can be used to assess ecologically valid conditions related to different goal strategies. Golfers will, at times, putt with a mastery goal strategy. That is, they may go to the practice green and work for hours with the focus of mastering one aspect of putting (e.g., tempo or alignment). However, putting can also be used for many competitive games (e.g., Bowman & Clemence, 1984). Therefore, golf-putting can involve both a mastery and an outcome goal orientation.

The putting surface for this study was a practice putting green at a local golf course. The surface was Bermuda grass and was completely straight and flat (i.e., will not have any break). The speed of the greens were approximately 6-7 on the Stimpmeter.

Target Putting Task

For this task, participants putted to an archery-type target made of Plexiglass (diameter=1 m). This target was marked with a series of 7 concentric circles, divided into four equal quadrants. Each circle was a width of 15 cm. The grid was supported by four 8 cm dowels. This allowed for the grid to be placed above a putting hole.

A ball that drops into the hole was given a score of (0,0). Balls landing outside the hole were given a score corresponding to finish position on the putting grid. Balls landing outside of the grid were given a score of (8,8). An experimenter marked down all putts on a corresponding sheet and these were used as performance measures.

Procedure

The experiment was conducted in 18 sessions over a 6-week period on the putting green. At the first meeting, participants were given a brief introduction and then asked to complete an informed consent form (see Appendix C). Then, they were requested to fill-out the perceived ability questionnaire and the IMI. This lasted approximately 15 min.

At the second meeting, participants were given standardized instructions concerning the fundamentals of putting according to Bowen and Clemence (1984). These instructions were read by the experimenter and lasted approximately 10 min. Participants were instructed to practice for 20 min and then play the mini-golf game for the next 20 min on the putting green. The CDS-II was then given and used as a baseline measure of attributional style.

The following day, baseline scores were assessed for both putting performance tasks. For the target putting task, pilot testing was conducted to determine the number of appropriate trials and appropriate putting distance. Using the scores of 10 participants, a graphed analysis indicated that the learning curve reached an asymptote at approximately 35 trials at a distance of 4.66 m.

Thus, for the target putting task, participants were asked to putt to the target in two blocks of 20 trials at a distance of 4.66 m. Following this, each was asked to perform the mini-golf putting game which lasted approximately 5 min. For both measures, putting was conducted individually. As specified above, students were matched by ability levels and then randomly assigned to goal treatment groups at this time.

The following day, goal objectives were distributed and explained by the experimenter (see Appendix D). This presentation was conducted individually and lasted approximately 10 min. Each participant was requested to use the goal-setting program for every week of the semester.

The assessment technique for monitoring these goals was based on a modified version of the achievement management plan (Singer, 1984). The selection of goal difficulty was based on two previously conducted goal-setting sport studies (i.e., Rudisill, 1989; Weinberg et al., 1985).

At this time, participants were informed that at the end of the semester there will be a putting competition which will involve the mini-golf putting game. To motivate the students, they were told that the top half of the scores in the competition will receive 10 bonus points toward the skill portion of the total grade. The skill portion is out of 50 total points and counts for one-third of a student's total grade. Furthermore, they were told that the more adept they get at using these goal strategies for putting, the better they will perform during the putting competition. Although the above tactic was used to motivate the participants, all were given 10 extra bonus points toward their grade at the end of the semester.

For the next 12 sessions, students participated in both practice sessions and competitive games. Practice included the following: tempo, alignment, target golf task, and the mini-golf putting game (solo) (see Appendix E). For each practice session, participants rotated stations and each station was composed of one practice method. Participants were alone at each station for approximately 5 min.

Competitive games included: best ball, select a shot, and mini-golf competition (see Appendix F). For each competitive session, participants rotated stations and each station consisted of one competitive game. Participants were at each station for 5 min.

Both the practice and competitive sessions combined lasted approximately 40 min. The order was always the same, practice first followed by competitive games.

Between sessions six and seven, putting performance was assessed. First, participants were asked to putt to the target apparatus in two blocks of 20 trials from the same distance as the baseline measure. Between the two trial blocks, participants were informed that they could get a drink of water, stretch, or practice putting for the next 3 min. Time on task between blocks was assessed in seconds during the free-time period. Performance scores and time on task was recorded by the experimenter.

After completing this task, participants were asked to perform the mini-golf putting task. An experimenter recorded the performance scores. Both tasks were performed individually.

One day following session 12, the perceived ability scale, the IMI, and the CDS-II were administered. After completing these questionnaires, putting performance was assessed. The procedure for these tasks was the same as between sessions six and seven.

Manipulation checks were given following the experiment to determine whether the participants used the assigned goal strategies and their perceptions of these strategies (See Appendix G).

Design and Analysis

Separate ANOVAs were used to determine the influence of goal strategies on attributions, perceived ability, intrinsic motivation, persistence, and performance.

Intrinsic Motivation

Intrinsic motivation related to the golf-putting task was determined by administering a modified version of the IMI twice during the experiment. Scores for the three subscales (interest-enjoyment, effort-importance, tension-pressure) were totaled and served as the dependent measures. Data were analyzed in 4 X 2 (Groups x Pre/Post Tests) mixed model factorial ANOVAs for each subscale.

Attributions

Attributional style was determined by administering the CDS-II twice during the experiment. Scores for each of the four subscales (locus of causality, external control, stability, and personal control) were totaled and served as dependent measures. Data were analyzed in 4 X 2 (Groups x Pre/Post Tests) mixed model factorial ANOVAs for each subscale.

Perceived Ability

The perceived ability scale was administered twice during the experiment. Scores from the questionnaire were totaled and served as the dependent measure. Data were analyzed in a 4 X 2 (Groups x Pre/Post Tests) mixed model factorial ANOVA.

Persistence

Time on task in sec during the free-time period was used as the persistence measure. This was assessed twice during the study, once in the middle and at the conclusion. Data were analyzed in a 4 X 2 (Groups x Pre/Post Tests) mixed model factorial ANOVA.

For the self-report measure of persistence, time in minutes spent practicing served as the dependent measure. Data were analyzed in a one-way ANOVA.

Performance

Sport researchers (i.e., Shea, Shebilske, & Worchel, 1993) have proposed that traditional one-dimensional error scores may be inappropriate for performance assessments of such tasks as golf-putting and dart throwing. These tasks require two-dimensional error scores. Hancock et al. (1995) have suggested that MRE, SRE, and BVE are appropriate two-dimensional error measurements for the target task to be used in this study. The formulas for deriving these error scores are included within that manuscript.

Separate 4 x 6 (Groups x Trial Blocks) ANOVAs with repeated measures on the last factor were conducted for MRE, GRE, and BVE on putting performance. Trial Block means were averaged and served as the dependent measure. The mean comparisons that were used for this study are baseline (Trial Blocks 1 and 2), acquisition (Trial Blocks 3 and 4), and retention (Trial Blocks 5 and 6).

Analysis of MRE provided information concerning accuracy of the putting scores. SRE analysis furnished knowledge about consistency in the scores and BVE gave information about variability.

In addition, a 4 X 3 (Groups x Tests) mixed design factorial ANOVA were conducted for the scores on the mini-golf putting task. Total score for each trial served as the dependent measure.

CHAPTER 4

RESULTS

To determine whether cognitive, affective, or behavioral changes occurred due to the intervention, dependent measures were analyzed with ANOVAs using the traditional F test values. (ANCOVA was used for the stability factor in attribution data.) Tukey's honestly significant difference (HSD) test was used as a post-hoc procedure when significant main effects were determined. Simple main effects analyses were conducted following any significant interactions. Alpha level was set at .05.

Intrinsic Motivation

Changes in intrinsic motivation were determined according to the data collected with the IMI (McAuley et al., 1989). Each of the three subscales was analyzed with a 4 X 2 (Groups x Pre/Post Tests) repeated measures factorial ANOVA.

Enjoyment/interest

Analysis revealed a significant Groups x Tests interaction (see Figure 4.1), $F(3, 68) = 3.29$, $p<.05$. Simple effects analysis revealed that the MO group significantly increased its enjoyment toward the task. Comparisons of the other group means were not significant (see Table 4.1).

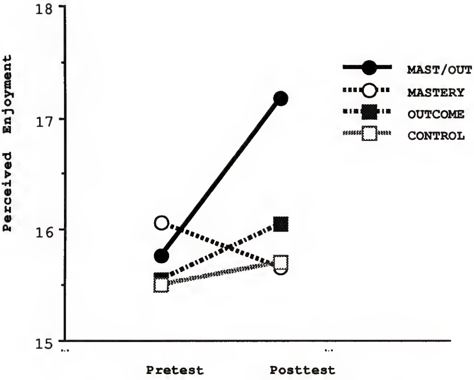

Figure 4.1. Change in enjoyment as a function of training.

Table 4.1

Perceived Enjoyment

Groups	Pretest M	Pretest SD	Posttest M	Posttest SD	t	p
Mastery/Outcome	15.76	2.10	17.17	1.55	2.41	.03*
Mastery	16.06	2.25	15.66	1.91	1.25	.23
Outcome	15.55	2.32	16.05	2.43	-1.39	.18
Control	15.75	2.03	15.65	2.34	-0.90	.38

*Significant at .05 level.

Effort/importance

ANOVA indicated a significant Groups x Tests interaction, $F(3, 68) = 3.46$, $p<.02$. Figure 4.2 shows the interaction. A simple main effects analysis indicated that only the MO group significantly increased its perceived effort toward the task. No other differences were found (see Table 4.2).

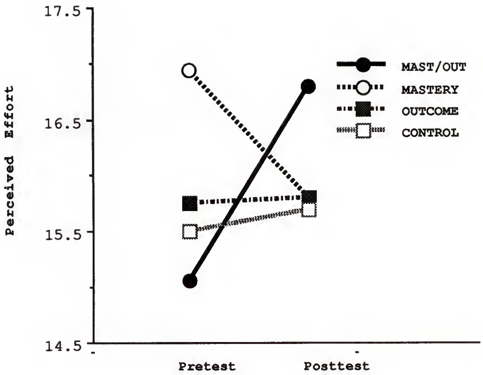

Figure 4.2. Change in perceived effort as a function of training.

Table 4.2

Perceived Effort

Groups	Pretest		Posttest			
	M	SD	M	SD	t	p
Mastery/Outcome	15.06	2.95	16.88	1.70	3.09	.01*
Mastery	16.93	2.65	15.80	2.67	1.49	.16
Outcome	15.75	2.61	15.80	2.96	-0.06	.95
Control	15.55	2.55	15.75	2.52	1.76	.10

*Significant at .01 level.

No significant changes were found for the pressure/tension dimension.

Attributional Style

Changes in attributional style were determined according to the data collected with the CDS-II (McAuley et al., 1992). Data were analyzed separately for each subscale.

Stability

Preliminary analysis revealed a significant main effect for pretest scores, $F(3, 68) = 12.59$, $p<.003$. Furthermore, it was revealed that the correlation coefficient taken for the pretest and the dependent variable was $r=.34$. According to Keppel and Zedeck (1989), an ANCOVA would be most appropriate under these conditions. Therefore, a 4 X 2 (Groups x Tests) repeated measures ANCOVA, using the pretest as a covariate, was used to determine any changes in stability due to training. ANCOVA demonstrated a significant Groups x Tests interaction (see Figure 4.3), _F_(3, 68) = 6.58, _p_<.01. Simple main effects analysis indicated that only the outcome group significantly increased in their perceived stability for future putting failures according when comparing pretest to posttest scores (see Table 4.3 for adjusted means).

Table 4.3

Perceived Stability

Groups	Pretest		Posttest			
	_M_	_SD_	_M_	_SD_	_t_	_p_
Mastery/Outcome	10.17	2.85	9.70	3.40	0.58	.55
Mastery	7.25	2.58	7.93	2.98	1.46	.17
Outcome	6.88	3.23	9.22	3.05	2.25	.04*
Control	9.93	2.40	9.96	3.55	0.60	.56

*Significant at .04 level.

External control. A significant Groups x Tests interaction was revealed, _F_(3, 68) = 3.05, _p_<.05. Figure 4.4 illustrates this interaction. Simple main effects follow-up procedure indicated that only the O group

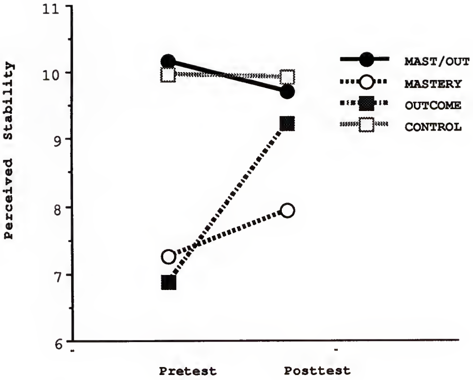

Figure 4.3. Change in perceived stability of failure in putting as a function of training.

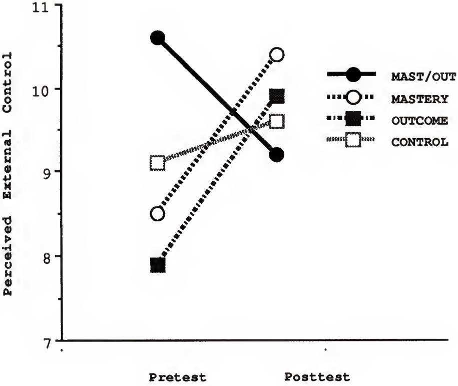

Figure 4.4. Change in external control as a function of training.

significantly increased its perception of external control for failure. However, a closer scrutiny of the means illustrated that only the MO group decreased its perception of external control due to training (see Table 4.4).

Table 4.4

External Control

	Pretest		Posttest			
Groups	M	SD	M	SD	t	p
Mastery/Outcome	10.60	4.57	9.20	4.34	-1.33	.21
Mastery	8.57	3.25	10.42	3.97	-1.74	.11
Outcome	7.94	3.89	9.94	3.68	2.14	.05*
Control	9.33	4.50	9.46	4.01	0.77	.46

*significant at 05 level.

No significant changes were found for the personal control and locus of causality subscales.

Perceived Ability

Changes in perceived putting ability were determined using a 4 X 2 (Groups X Pre/Post Tests) repeated measures factorial ANOVA. For this analysis, a significant main effect for Tests was revealed, $F(1, 68) = 85.66$, $p<.001$. Perceived ability increased for all the groups from pretest (M=14.09) to posttest (M=16.31) (see Table 4.5).

Table 4.5

Perceived Ability

	Test Session			
	Pretest		Posttest	
Groups	M	SD	M	SD
Mastery/Outcome	14.23	3.19	16.23	2.25
Mastery	14.07	4.07	16.21	3.33
Outcome	13.55	3.46	15.60	3.21
Control	14.00	3.45	15.50	3.20

Persistence

Persistence was determined using two different methods: (1) time on task during a free time period, and (2) the amount of reported practice time (minutes) outside class. Both were analyzed using a one-way ANOVA.

Time on Task

Analysis did not reveal any significant differences among the groups for this persistence measure.

Reported Practice

A significant group main effect for reported practice was revealed, $F(3, 68) = 3.81$, $p<.03$. Figure 4.5 graphically illustrates this result. The Tukey follow-up procedure indicated that the MO group (M = 44.80 min, SD = 35.12) reported that it practiced outside class significantly more

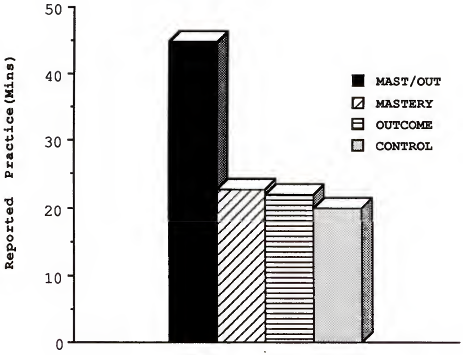

Figure 4.5. **Reported amount of putting practice outside of class during training period.**

than the other three groups: Mastery (M = 22.67 min, SD = 20.12), Outcome (M = 22.00 min, SD = 20.61) and Control (M = 21.34 min, SD = 18.04).

Performance Measures

Two different tasks, a mini-golf putting task and the putting accuracy test, were used to assess changes in performance. The total amount of putts for nine holes in the mini-golf task was used as one performance measure. These data were analyzed using a 4 X 3 (Groups X Trial Blocks) repeated measures factorial ANOVA. For the putting accuracy task, Mean Radial Error (MRE), Bivariate Radial Error (BVE), and Subject-Centroid Radial Error (SRE) were used as the performance measures. These scores were analyzed in separate 4 X 3 (Groups X Trial Blocks) doubly multivariate MANOVAs for MRE, BVE, and SRE.

Mini-golf Putting Task

Analysis did not reveal any significance for this performance measure. However, a closer examination of the means indicated that participants in the MO group demonstrated a steady decrease in putts per round while the performance of the other groups remained stable (see Table 4.6).

Table 4.6

Mini-golf Putting Performance

	Test Session					
	Trial 1		Trial 2		Trial 3	
Groups	M	SD	M	SD	M	SD
Mastery/Outcome	18.94	2.30	18.00	2.03	17.58	2.00
Mastery	18.50	2.44	17.81	2.22	18.37	1.78
Outcome	19.20	2.06	18.45	1.55	19.60	2.25
Control	19.10	1.95	18.95	1.85	19.10	2.05

Target Putting Task

MANOVAs conducted for each of the three error scores (MRE, BVE, SRE) were not significant. Means and standard deviations for each of the error scores are presented in Table 4.7, 4.8, 4.9, respectively.

Table 4.7

Mean Radial Error(MRE)

	Test Session					
	Trial 1		Trial 2		Trial 3	
Groups	M	SD	M	SD	M	SD
Mastery/Outcome	3.66	0.98	3.11	1.16	3.85	1.05
Mastery	3.71	1.45	3.77	1.49	3.61	1.23
Outcome	4.34	1.77	4.31	0.80	4.11	1.14
Control	4.88	1.34	3.23	1.25	4.88	1.85

Table 4.8

Bivariate Radial Error(BVE)

	Test Session					
	Trial 1		Trial 2		Trial 3	
Groups	M	SD	M	SD	M	SD
Mastery/Outcome	1.17	0.90	1.55	1.04	1.34	0.85
Mastery	2.35	1.88	1.25	1.55	1.44	1.66
Outcome	1.62	1.84	2.86	1.33	1.24	1.08
Control	2.22	1.00	2.66	1.21	2.53	1.04

Table 4.9

Subject-Centroid Radial Error(SRE)

	Test Session					
	Trial 1		Trial 2		Trial 3	
Groups	M	SD	M	SD	M	SD
Mastery/Outcome	4.17	1.14	3.64	1.02	4.04	1.11
Mastery	4.23	1.29	3.67	1.05	4.11	1.23
Outcome	4.60	1.22	4.12	1.00	3.25	1.66
Control	3.88	1.44	4.23	1.25	3.88	1.89

Manipulation Checks

Researchers have suggested that a critical factor in goal-setting research is whether the treatment group members accept their assigned goals and are committed to the them (Weinberg, 1992; Weinberg & Gould, 1995). The manipulation checks for this study revealed that all participants in the treatment groups accepted their goal strategies and were highly committed to their assigned goal treatments.

Furthermore, motivational theorists have reported that the results in goal-setting research may be confounded when the control group spontaneously sets its own goals (Locke & Latham, 1990; Weinberg, 1992). In this study, only a small percentage (5%) of the control group set its own goals.

CHAPTER 5

DISCUSSION, SUMMARY, CONCLUSIONS, AND IMPLICATIONS FOR FURTHER RESEARCH

The goal orientation model of achievement motivation stems from both theoretical and empirical work of educational researchers such as Nicholls (1984, 1989), Ames (1984, 1992), Dweck (1986), and Maehr (1984). The theory was proposed to explain "inequality of motivation for intellectual development and for deciding what might best be done to foster optimal motivation in students of all ability levels" (Nicholls, 1989, p.83). Although the central tenets of the achievement goal model have been extensively tested in education, sport psychology researchers have only recently begun to test its theoretical constructs in the athletic domain.

The majority of research in both classroom and athletic settings has demonstrated that a focus on self-improvement, rather than an emphasis on outcome, promotes the most effective motivational patterns conducive to long term achievement (Ames, 1984; Duda, 1992, 1993; Duda & Nicholls, 1992). Specifically, those who are predominately concerned with self-improvement goals tend to exhibit greater intrinsic interest toward the task, more adaptive attributional patterns, and greater increases in task persistence and performance levels.

However, recent research with both beginners (e.g., Hom et al., 1993) and experts (e.g., Jackson & Roberts, 1992) has indicated that it may be most effective for successful achievers to possess both mastery and outcome goal orientations concurrently in sport situations. Therefore, the primary purpose of this dissertation was to compare the effects of a multiple goal strategy with separate goal strategies on achievement-related cognitions and behaviors in a sport setting.

The first part of this chapter focuses on the changes in the cognitive and behavioral patterns of the participants due to the intervention. Implications of these results for the achievement goal model follows and a revision of the existing theory is proposed. Practical applications of these findings to both sport and education are presented next. The chapter concludes with future research directions for the achievement goal model.

Discussion

Changes in cognitions, affect, and behaviors due to the goal intervention are discussed here. Possible reasons for these occurrences are also proposed.

Intrinsic Motivation

It was hypothesized that the MO (Mastery/Outcome) goal group would demonstrate the greatest increase in intrinsic motivation. Scores on the enjoyment/interest subscale and the effort/importance subscale supported this prediction. As a result of training, the MO group experienced greater gains in enjoyment toward the task as well as perceived exerted effort given toward putting achievement. Task interest and perceived effort for the other groups did not change.

The disparity in intrinsic motivation across the groups may be explained by differences in perceived control over the learning environment. Central to the cognitive evaluation theory is that intrinsic motivation should heighten as a result of an increase in perceived control (Deci & Ryan, 1985). In this study, the instructional environment consisted of a constant interaction between a mastery and competitive environment. Thus, it may be argued that the MO group possessed a goal strategy that matched the changing demands of the learning situation. In turn, this promoted a greater sense of command over the learning environment.

Furthermore, these findings are congruent with other references in the achievement motivation literature (Harackiewicz & Sansone, 1991; Sansone et al., 1989) that demonstrated an increase in intrinsic motivation when situational goals matched the goals of the participant. Specifically, when the performer's goals corresponded to the purpose goals of the learning situation, intrinsic motivation was enhanced. Drawing from these results, these authors proposed that matching goals to the achievement environment may be an important mediator of intrinsic motivation.

Attributions

Considerable research evidence has been amassed that demonstrate that the adoption of different achievement goals elicit distinct attributional patterns (e.g., Duda 1992, 1993; Hall, 1990). People who evaluate competence based on self-improvement tend to view failure as stemming from more controllable and unstable factors, such as lack of effort. Conversely, those who emphasize winning tend to attribute failure to less controllable but more stable factors, such as lack of ability and natural talent. Very little is known, however, concerning the attributional patterns of those who adopt both types of goal orientations.

As stated previously, participants in the MO group should perceive a greater sense of control in their environment because they have a goal strategy that better matches the changing demands of the instructional setting. This perception of control should promote the explanation of putting failure in more effective terms for successful achievement. Therefore, it was predicted that the MO group should view failure as less stable and explain failure with more controllable attributions as a result of the treatment. According to previous research, it was also predicted that the M group would make more adaptive attributions than the O group. These hypotheses were partially supported.

The results reveal that participants given an outcome goal strategy perceive that putting failure becomes more stable and more externally controllable over time. In other words, the attributional pattern turned more maladaptive due to the treatment. No significant changes in stability or external control were observed for the other three groups. These findings support previous data that have shown that an outcome goal orientation may promote a maladaptive attributional pattern (Hall, 1990; Nicholls, 1989).

A closer scrutiny of the present data, however, reveals that the MO group may have begun to make more adaptive attributions due to training. As indicated by the means in Tables 4-3 and 4-4, participants given a multiple goal strategy viewed failure as less stable and less externally controllable as a result of training. In direct contrast, the attributional patterns of the other groups indicate that putting failure was becoming both more stable and more externally controllable. In other words, these groups were using an ineffective attributional pattern for long term achievement.

Perceived Ability

Recently, achievement goal researchers (e.g., Hom et al., 1993) have proposed that possessing both mastery and outcome goals may be more effective to long term achievement because this type of orientation allows for multiple sources of competence information. It was hypothesized that 9participants in the MO group would demonstrate the greatest gains in perceived ability because they have the greatest possibility for determining success (i.e., the demonstration of superiority as well as personal improvement). According to other research findings (Hall, 1990), it was also predicted that the mastery goal group would demonstrate greater gains in perceived ability than either the outcome or control groups. The results did not confirm these predictions. Rather, all groups gained significantly in perceived ability.

This change in perceived ability may have been the result of the increase of experience with the task. Participants in this study were all beginners with little experience in putting. As training progressed, each probably had a number of successful episodes with the task. Most likely, this increased their perception of putting ability.

Persistence

Achievement goal scholars have also investigated the behavioral correlates of persistence (continuing to try hard) as a more direct measure of motivation. In sport achievement situations, researchers have found a positive relationship between self-improvement goals and persistence (Hall, 1990; Treasure, 1993).

To date, only one study reported (Duda,1988) the benefits to persistence when both mastery and outcome goals were adopted simultaneously. Congruent with these findings, it was predicted that the MO group would demonstrate the greatest increases in persistence as a result of training. Persistence was measured using two different indices: (1) self-report practice time during the intervention period, and (2) amount of practice during a free-time period.

The self-report measure of persistence showed that subjects in the MO group practiced significantly more than those in the other three groups. Not only were these findings significant, but the MO group reported that it practiced an average of twice as much as the other three groups during the study (40 min per week as compared to 20 min per week). Although some researchers have questioned the reliability of self-report measures (Nisbett & Wilson, 1977), this finding clearly indicates that participants in the MO group perceived that they practiced to a greater extent than participants in the other groups.

For the free time measure of persistence, no differences were found among the groups. However, this does not necessarily indicate that no differences in persistence existed. Although this paradigm has been used extensively in motivation research, some researchers have begun to question its validity as an index of change in persistence (Bandura, 1986; Ryan, Kostner, & Deci, 1991; Wiersma, 1992). One main principle of the free-time paradigm is that it provides choice. If individuals are given freedom of choice (i.e., perceived internal locus of control), then they should persist in that task if they are intrinsically motivated (Deci & Ryan, 1985). However, Bandura (1986) has stated "how long one persists in a given activity will vary dependent on the alternatives available in the situation" (p. 243). Therefore, it is conceivable that for this study the available options influenced the amount of persistence during the free-time period. In this study, participants may have wanted to get a drink or relax at this time, as well as practice.

Performance

Although a preponderance of sport studies have indicated that a concern with self-improvement is associated with the highest performance levels (e.g., Burton, 1989; Hall, 1990; Solomon & Boone, 1990), to date no sport researchers have investigated the benefits to performance when participants possess both mastery and outcome goals simultaneously. Researchers in classroom settings, however, have discovered performance advantageous when students adopt multiple goals (Pintia & Garcia, 1991; Wentzel, 1989). Congruent with these findings, it was predicted that the MO group would demonstrate the greatest performance increments during the intervention period. It was also predicted that participants who were given mastery goals would demonstrate greater increases in performance than those given outcome goals. In the present study, performance was measured with two separate tasks, mini-golf and target putting.

For the mini-golf task, participants in the MO group demonstrated a trend for an increase in putting performance due to the intervention, whereas the performance levels of the subjects in the other groups remained stable. Participants in the MO group decreased their number of putts from an average of 19 to 17.5 (a difference of 1.5 for nine holes) due to the intervention. That difference translates into an average decrease of three strokes per 18 holes.

It can be argued that this trend in performance may have become statistically significant with a longer treatment period. A careful scrutiny of the data indicated that there was a large variability within the group scores and a demonstration of significance is extremely difficult under these statistical conditions (Toothacker, 1986). However, this range in scores is most likely the result of experience with the task. All subjects were beginners. With a longer training period, the extreme variability in putting scores should diminish for golfers at this ability level.

Motor learning researchers (e.g., Singer et al., 1993) have previously used target tasks to assess changes in motor skill proficiency as a result of a given cognitive strategy. Therefore, this study also included a target putting task to assess performance differences as a result of the goal-strategies. Analysis of the performance scores for the target putting revealed no significant differences across the groups.

Although no significant changes were found among the groups, it can be reasoned that participants in the MO group would demonstrate the greatest increases in performances over a longer period of time. Achievement goal theorists (i.e., Duda, 1992; Hall, 1990) have postulated that the exhibition of adaptive motivational patterns should ultimately promote favorable increases in task performance. Overall, the findings of this study revealed that those participants who were given a multiple goal strategy demonstrated more effective achievement patterns during the six-week training period. That is, they enjoyed the task more and practiced significantly more than the other participants. In the long run (i.e., 1 or 2 years from now), these favorable emotions and behavior should produce the highest level of task achievement.

Data in Contradiction with Previous Literature

As indicated in the review of literature in this dissertation, most studies conducted in the achievement goal area have demonstrated that mastery goals promote more effective achievement patterns than outcome goals. However, the findings from my study did not show any differences in achievement between these two goal strategy groups. Rather, my results suggest that only a combinational goal strategy is effective.

The reason for the conflict in findings may be a direct result of the differing methodology used in this study as compared with previous investigations. In the previous achievement goal literature (e.g., Hall, 1990; Jagacinski & Nicholls, 1984; Rudisill, 1989; Solomon & Boone, 1993; Treasure, 1994), an achievement situation is typically constructed that focuses on either mastery or competitive objectives. Then differences are investigated in resulting achievement patterns as a function of these contrasting learning situations.

Conversely, the methodology I used involved an attempt to simulate a more realistic learning environment which is typically comprised of a continual interaction of a variety of achievement conditions. Participants were assigned different goal strategies and then learned a sport task within both self-improvement conditions and competitive situations. Using these procedures, the results showed that a strategy comprised of both mastery and competitive orientations produced favorable increases in both task enjoyment and persistence. The alternative strategies did not generate any effective changes in achievement behavior.

In a learning environment that requires both mastery and competitive considerations, these findings suggest that a focus on only self-improvement may be inadequate. A concern for competiting against others is also necessary. Conversely, a focus on only competitive objectives may also be unsatisfactory. Therefore, an emphasis on only mastery goals should not produce more favorable achievement patterns than outcome goals in a realistic sport situation. Both types of strategies appear to be ineffective.

In summary, the reasons for the uniqueness of these findings is twofold: (1) this is the first study in which procedures were used to more adequately reflect learning a sport task within an actual sport situation, and (2) within such an environment, this study is the first to test the influence of different goal strategies upon achievement patterns.

Implications to the Achievement Goal Model

The achievement goal model predicts that adopting mastery goals should promote the most effective motivation patterns conducive to successful achievement. Research has generally supported these postulations. One important theoretical question, then, is "what are the mechanisms through which different goals produce associated patterns of cognitions, affect, and behavior?"

The issue of perceived control has been proposed as one main underlying factor that distinguishes the effectiveness of each goal orientation (Burton, 1989; Dweck & Leggett, 1988; Weiss & Chaumeton, 1993). Contemporary conceptions of goal orientations are based on two primary considerations. First, perceived competence or ability is viewed as the underlying construct for mediating motivational behaviors. A favorable display of competence should promote positive achievement patterns, whereas a negative assessment of ability should produce the opposite. Second, this assessment is determined by the achievement goals selected by the individual. As suggested by achievement goal theorists, perceived ability based upon self-improvement considerations should be more controllable than when the concern is with the demonstration of superiority. Thus, a favorable assessment is much more likely for those who are concerned with mastery.

Mastery goals can be adjusted so that the level of difficulty does not exceed current performance capabilities (Burton, 1989). For less skilled athletes, performance standards can be set at low proficiency levels. However, for higher level performers, mastery goals can be established at more challenging standards. This flexibility of mastery goals not allows the athlete to attain success more readily, but should also promote a greater sense of control over the environment.

In direct contrast, competence based solely upon the demonstration of superiority is severely limited. Winning is the result of many factors the athlete cannot directly regulate, such as an opponent's performance, playing conditions, official's decisions, and luck (Burton, 1989). Thus, competence based upon competitive outcomes is much more unpredictable. This should ultimately diminish a sense of control over the learning environment.

However, findings from this study did not support the proposal that an emphasis on mastery should promote the greatest sense of control. Rather, the overall pattern of the results indicates that participants in the MO group perceived the most control over the learning environment. First, those participants who were given a goal strategy that included both mastery and outcome goals were the only ones to gain in their enjoyment and interest toward the task. Subjects in the other groups did not change. According to the cognitive evaluation theory (Deci & Ryan, 1985), intrinsic motivation for the task should heighten as a direct result of an increase in perceived control.

Second, the MO group reported that it exerted the most effort and persistence toward the task. According to the model proposed by Weiner (1985), effort and persistence are personally controllable factors. That is, the amount of effort or persistence can be regulated to attain an outcome. More important, people should give more effort and/or persistence when they perceive that the desired outcome is within their control (Diener & Dweck, 1978, 1980; Dweck & Leggett, 1988).

Last, performers who perceived a sufficient amount of control in their environment should explain outcomes in more controllable terms. Those who were given a multiple goal strategy began to explain putting failure with less externally controllable factors, while the other groups reported a decrease in this dimension.

A New Direction

Currently, a preponderance of motivational theorists (e.g., Duda, 1993; Roberts, 1993; Shakarian, 1995; Treasure, 1994) have suggested that a predominate concern with mastery goals will produce optimal motivational patterns in sport. In fact, certain individuals will be satisfied with only improving performance based on self-standards. Some performers are very happy with simply playing and practicing a sport skill with little concern about being the best, and who they can and cannot beat.

The findings of this study, however, suggest that a combinational goal orientation will be most effective for attaining the highest level of achievement level. It appears that the adoption of multiple goals promotes the flexibility to determine competence from multiple sources of information. This should ultimately allow for the continual progression to higher levels of skill proficiency.

The existing theoretical literature appears to fall short of describing the multitude of motivational objectives of those involved in sport. A new research direction is needed which more adequately addresses real-world concerns. Such a direction would not only lay the foundation for a more valid theoretical model, but also provide a groundwork for making appropriate recommendations to sport skill instructors.

The following section describes a revision to the existing achievement goal model and is based primarily upon the findings of this study. Although the modified version is a better description of real-world concerns, it is not an all inclusive theoretical framework. It is only a first step in the appropriate and needed direction for understanding the complexities of the sport setting. The application to sport skill instruction using this revised model follows.

A Revised Model

The integrated framework that I propose (see Figure 5.1) is developed from the model presented by Roberts (1992). Two main conceptual viewpoints exist between the two models. First, a performer's goal orientation is hypothesized to mediate how perceived competence is determined. Second, perceived competence is predicted to mediate motivational behaviors: Favorable competence evaluations should promote effective motivational strivings.

Previous theorists (i.e., Duda, 1993; Roberts, 1992) have divided the learning envirionment into two distinct entities: mastery or competitive. The revised model, however, assumes that the motivational climate within the sport setting typically encompasses both mastery and competitive aspects. Novices may first try to acquire a sufficient level of skill proficiency. However, once

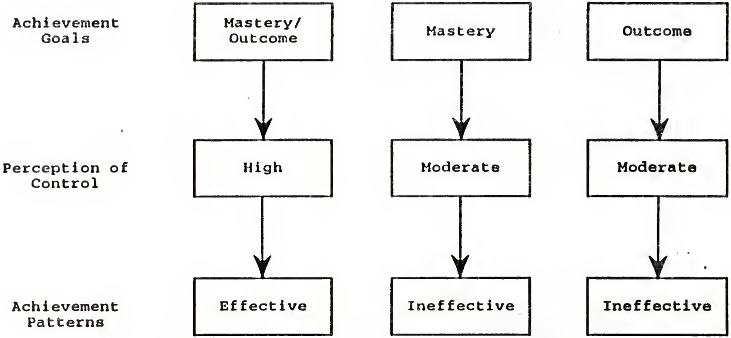

Figure 5.1 Revised model of achievement goal theory within a mastery and competitive environment.

achieved, they will probably seek out relevant others and compete with them to determine skill level (Festinger, 1954; Scanlon, 1986). In addition, following experiences in competitive situations, performers will typically return to a more practice-oriented environment to work on specific performance weaknesses (e.g., overall conditioning, mechanical techniques). Thus, the revised model takes a more realistic approach in that the learning of sport skills encompasses a continual interaction of both mastery and competitive considerations.

The concept of perceived control is also added to the revised model and is suggested as the underlying determinant for the effectiveness of each goal strategy. Perceived control is mediated to the extent that the goal orientation can match the demands of the achievement situation (Hunt, 1975). Specifically, performers who have the capabilities to evaluate competence in any given learning situation as well as to adjust concerns accordingly should have the highest level of perceived control. In contrast, those who can only determine proficiency levels in specific situations should have lower levels of perceived control. Furthermore, higher levels of perceived control levels should result in more effective achievement-related affect (Deci & Ryan, 1985), and cognitions (Weiner, 1985).

In addition, previous theorists have argued that perceived ability mediates the demonstration of achievement behaviors dependent upon one's goal orientation. Specifically, it has been predicted that perceived ability has little impact on achievement when the focus is on self-improvement. Low perceived ability coupled with a preoccupation with winning should lead to maladaptive achievement patterns. However, I did not investigate the function of percieved ability level on the different goal strategies. Thus, it is not known how this variable affects the different goal strategies when people attempt to acquire sport skills. Therefore, ability level has been omitted from the revised model depicted in figure 5.1.

Furthermore, the predictions for this model are based only on the findings from the current study. Previous investigations have not examined the effectiveness of a different goal strategies within an environment that is a continual interaction of both self-improvement and competitive situations. Thus, the findings of previous achievement goal investigations have not been incorporated into these predictions.

The following section describes each component of the revised model. The variables presented are in the temporal order given in the framework.

Goals of Action

There are three possible goal orientations (rather than two) that an individual may adopt: mastery/outcome, mastery, and outcome. As suggested by other theorists (e.g., Duda, 1993; Dweck, 1986; Nicholls, 1984; Roberts, 1992), a performer may adopt an orientation that determines competence based predominately on achieving mastery, improving, or perfecting a skill (Nicholls, 1984; Roberts, 1992). People may also select an outcome orientation which is essentially concerned with the judgement of ability or inability based on social comparative information (Nicholls, 1984; Roberts, 1992).

Unique to the revised model, however, is the proposition that athletes can possess a goal orientation that encompasses both mastery and outcome objectives concurrently. These performers have the capability of judging competence based on self-improvement as well as founded on competitive information.

In addition, this goal strategy provides the capability to modify the amount of each motivational objective according to the concerns of the athlete, coach, or instructor. For example, in order to make the traveling squad, an athlete may be focused primarily on winning at the beginning of the season, with little interest in improving some performance component. For simplicity sake, this athlete may be characterized as possessing a 90%-10% goal profile, with the former on winning and the later on improvement. However, the coach may want the player to improve upon some performance weakness at this time. A multiple goal orientation will allow the athlete to adhere to these concerns and change each goal accordingly, stressing the development of a new performance capability (e.g., 30%), while showing a lesser concern with winning (e.g., 70%). Thus, this goal orientation not only provides the widest opportunity for evaluating competence, but also promotes the flexibility to meet the demands of the achievement situation.

Perceived Control

According to the revised model, perceived control is the crucial variable in determining the effectiveness of the goal strategy. The highest levels of perceived control should directly correspond with the most effective motivational patterns.

Mastery/Outcome goal orientation.

The level of perceived control for those who adopt multiple goals should be optimal because they have the capability to evaluate competence in all possible achievement situations. With this strategy, competence can be determine according to improvement in a wide variety of sources, such as physical conditioning, mental strategies, and psychological factors. However, level of proficiency can be also be determined according to the outcome of the event.

As stated earlier, possessing a multiple goal strategy also provides the capability to regulate each orientation according to the concerns of the performer and/or instructor and coach. This potential to adapt one's goal orientation to meet the demands of the sport experience should also greatly enhance the level of perceived control.

This high level of perceived control for performers with a multiple goal strategy should correspond with maximal motivation. This achievement pattern should be characterized by high levels of task interest (Deci & Ryan, 1985), and the explanation of outcomes in adaptive (i.e., controllable) terms (Weiner, 1985), In turn, these effective achievement-related affect and cognitions should promote greater persistence in the face of difficult obstacles, and ultimately, an increase in performance levels.

Mastery goal orientation. During mastery attempts, this goal orientation can determine competence (i.e, match) in these achievement situations. However, in competitive conditions, a mastery goal strategy is not directed toward using outcome-based information for assessment purposes. The limited ability to judge competence information should produce only a moderate level of perceived control as compared to the evaluation from all possible sources.

Because this type of orientation produces only a moderate level of perceived control, there should be little change in achievement patterns. Specifically, no favorable changes in intrinsic motivation toward the task, attributional patterns, and levels of persistence should occur when the focus is only on self-improvement.

Outcome goal orientation. Persons who are concerned with the demonstration of superiority should also only perceive a moderate level of control in determining competence in achievement settings. During competition, they can evaluate competence. However, in mastery situations, this goal orientation does not adequately "fit" with the demands of the achievement environment. With such a goal orientation, there is a limited ability to evaluate competence in a mastery-based learning situation. Because this type of strategy promotes only a moderate level of perceived control, there should be not change in achievement patterns across time. Specifically, levels of intrinsic motivation, attributional patterns, and levels of persistence should remain the same.

The revised model suggests that a concern with mastery as well as competitive outcomes should provide the highest level of perceived control to sport performers, regardless of ability level. As a result, this should promote the most effective achievement patterns so that performance potential can be reached. Thus, it seems readily apparent that the most appropriate instructional approach for sport participants at any level would be to emphasize a motivational orientation that incorporates both goal strategies.

Practical Implications to Sport

Currently, sport psychology researchers (e.g., Shakarian, 1995; Treasure, 1993) have urged those associated with teaching motor skills to de-emphasize outcomes as a criterion of success and to accentuate individual improvement, personal bests, and skill development. Considering the multitude of motivational concerns that are typically possessed by sport performers, this type of instructional philosophy seems not only to be very limited, but inappropriate as well.

The issue of sport skill instruction should not be whether an individual should adopt either mastery or outcome goals, but rather when such orientations should be emphasized. For certain achievement situations, a mastery goal is necessary, and for others an outcome orientation is not only important, but essential (Maehr, 1989). The following section discusses the benefits to sport performers at the beginning and more advanced levels of ability when they are guided to emphasize both goal orientations at the appropriate times.

Benefits of a Multiple Goal Strategy for Beginners

At the most rudimentary stages of skill development, the primary consideration for novices is with the acquisition of basic movement competencies associated with the sport (Feldenkrais, 1972; Fitts & Posner, 1967). These may include such basics as the proper grip and stance in golf, and the correct technique for dribbling a basketball. Thus, at this level, the appropriate instructional direction should be geared toward achieving a specified level of task mastery.

However, once elementary movements are acquired, some novices will enter into more competitive situations. They participate in such achievement settings because they are motivated to compare their skills with peers in order to appropriately evaluate their performance competencies (Festinger, 1954). An instructional approach that disregards some level of competitive objectives would be very disadvantageous to their skill development.

Beginners who are only concerned with self-improvement may begin to feel overwhelmed and distressed if they enter into competitive-oriented sport situations (Jones, 1993). As a consequence, they may abandon any type of competition in favor of less stress-producing situations. However, the competitive situation provides valuable achievement-related information which can be used as a performance measure of what needs to be worked on at a future date (Davies & Armstrong, 1989). Thus, a discontinuation of any competitive attempts will probably decrease the progression to higher levels of achievement.

Furthermore, an emphasize on competitive goals may provide additional reasons for the continuation of improving (Wentzel, 1989). The "joy" of winning or simply attaining a specified competitive level may motivate beginners to practice outside of class so that they may experience that feeling again.

Considering these points, it seems that teaching beginners to acquire a multiple goal strategy would be the most appropriate instructional strategy. While the best approach for beginners would most likely highlight mastery concerns, competitive goals should also be included into the mix. Such an instructional strategy would create a better opportunity for them to attain their performance potential.

Benefits for Advanced Performers

As compared to their lesser-skilled counterparts, advanced performers have been characterized as much more competively-oriented (Gill & Dzewaltoski, 1989). The primary reason of participation for many highly skilled sport performers is geared toward the demonstration of superiority and being one of the best.

Even at expert levels, however, athletes will usually need to improve upon certain performance capabilities in order to progress to more advanced stages of development. This consideration may include developing a better serve and volley game for a high school tennis player, or learning how to read defenses better for a college quarterback. Thus, in order to acquire these performance objectives, experts may need to be taught to accentuate more mastery-oriented concerns as well as their competitive goals.

Nonetheless, many expert performers may be very hesitant to downplay competitive outcomes in hopes of improving. At this level, sport participants have a given level of performance expectation, and maintaining this level of competitive standard is extremely important to them. This may include winning a certain tournament, placing in an event, or making the traveling squad on a high school or college team. Not performing at the expected competitive levels can be interpreted as failure, and more important, a diminishment of self-worth (Bandura, 1986).

While a multiple goal strategy would be highly beneficial for experts to advance to higher level of achievement, teaching them to acquire such an orientation may be quite difficult. Experts may be encouraged to first emphasize a certain percentage or amount of mastery goals in accordance with their competitive goals. For example, an expert tennis who has been attempting to master the serve and volley technique in practice may be encouraged to implement this procedure in more competitive situations; however, only a given percentage of the time (e.g., 10% of the time). Furthermore, this percentage may be increased as progress is demonstrated and as the technique is perceived as working to their benefit. Ultimately, this type of multiple goal instructional approach should provide the necessary incentive for experts to reduce performance weaknesses.

In summary, performers at any ability level should benefit from an instructional approach that utilizes both goal orientations. Singer (1980) has stated that no single one learning strategy is appropriate under all conditions. Teaching sport participants to emphasizes both mastery and competitive concerns provides the best likelihood to attain the highest achievement potential.

Practical Implications for Education

The achievement goal model was originally developed from educational research to help differentiate individual differences in motivation in sport settings. However, research in sport conditions may also benefit approaches to instruction in classroom situations.

Some educational researchers have acknowledged that the classroom environment has become extremely competitive. For example, only the top 10% of all high school applicants are accepted into the best colleges (Nicholls, 1989). Furthermore, once in college, admission into the most competitive graduate schools, medical schools, or law schools can waiver at around five percent of all the applicants (Nicholls, 1989). Thus, students are continually competing against one another in order to climb to the next level of the educational ladder.

It appears that the motivational needs of students and athletes are quite similar. In order to excel to the highest level, there is concern for mastery as well as being one of the best. Although some researchers have proposed that instructors should de-emphasize competition in the schools (e.g., Ames, 1984; Ames et al., 1977), it may be more effective to instruct students to emphasize the appropriate goals at the right time and in the most suitable situations. This type of educational approach should not only increase the motivation to learn, but may also promote achievement at the highest levels.

Summary

The general purpose of this investigation was to compare the effects of a multiple goal strategy to a mastery goal strategy and an outcome goal strategy on achievement-related cognitions, affect, and behavior during the learning of a golf-putt. To determine the effectiveness of each strategy, 72 beginning golfers were randomly assigned to one of four conditions: Mastery/Outcome (MO) goal strategy, mastery (M) goal strategy, outcome (O) goal strategy, and no goal strategy (control). Participants were instructed to implement their goal strategies during both the mastery and competitive phases of the study. Training lasted a total of six weeks.

Analysis of the data reveals that the MO group demonstrated significant increases in intrinsic motivation toward putting. According to scores on the IMI, the MO group enjoyed the task more and perceived that it generated more effort toward putting achievement. There were no significant changes in intrinsic motivation in the other three groups.

The results also indicate important cognitive changes as a function of the implementation of different goal strategies. Specifically, the O group became significantly more maladaptive in attributions toward putting. This group began to view putting failure as more stable and more externally controllable. In contrast, the MO group began to make more adaptive attributions toward putting. Putting failure was viewed as less externally controllable due to the intervention. The M and control groups did not change in attributional patterns.

Behavioral differences also emerged due to training. First, participants in the MO group reported that they practiced significantly more than the other three groups during the intervention period. Specifically, this group indicated that it practiced putting twice as much during this period. Second, the MO group demonstrated an increase in putting performance during the training period. The other groups did not change in putting performance.

Conclusions

Based on the findings of the study, the following conclusions are made:

1. The adoption of a multiple goal strategy uniquely characterizes favorable achievement patterns during the learning of a sport skill. Single goal strategies fail to

promote desirable motivational aspects.

2. A revision of the current achievement goal model is needed which incorporates a multiple goal strategy as most favorable to positive achievement. Currently, the existing achievement goal model predicts that a focus on only mastery goals is most conducive to long term achievement.

3. Instructors should emphasize both a mastery goal and an outcome goal orientation when teaching a sport skill. In contrast, many theorists presently suggest that instructors of sport skills should only accentuate mastery goals and/or develop a mastery oriented environment in order to produce the most effective learning situation. However, these findings highlights the necessity of implementing an instructional technique that incorporates the many concerns of sport learners.

Future Directions

On the basis of this study, the following suggestions are offered for future investigations concerning the achievement goal model applied to sport settings;

1. This study was one of the first to investigate the impact of a multiple goal strategy upon achievement patterns. In this study, the multiple goal strategy was composed of an equal percentage of both mastery and outcome goals. An important area of future interest would be to investigate whether this is the best combination for all individuals. Perhaps the most effective combination is a

function of the skill level of the performer as well as his or her objectives as to achievement. Because beginners are typically more oriented to learning how to control motor actions (Feldenkrais, 1972), a more effective combination of goals might be to emphasize an abundance of mastery objectives (e.g., 75%) as compared to outcome concerns (e.g., 25%). Considering that experts tend to be very competitive (Gill & Dzewaltowski, 1987), a preponderance of outcome goals may be more effective for the highly skilled. The results of such experiments will lay the groundwork for instructors to know which combination should be emphasized for a given skill level.

2. The present study raised the issue of whether individuals are benefitted when their goal strategies appropriately matches the achievement setting. It was assumed that those who were given a multiple goal strategy had the greatest potential to match the demands of the learning setting. The findings supported this proposal in that those who adopted both goal orientations demonstrated the most effective achievement pattern.

However, this study did not determine the benefits for those who adopt mastery goals and are placed into a predominately mastery-oriented environment. Or conversely, the advantages to those who adopt competitive goals and enter into a competitive environment was not ascertained. Perhaps performers who are placed into a "matching" type of environment will enjoy and persist longer at the task. Roberts (1992) has indicated that one of the most potential area for study in this area is to understand how ones' goal dispositional will interact with the motivational climate. However, at the present time, this area has received very little attention. More work is needed that considers both the person and situation interaction in attempting to clarify the complex relationship between achievement goals and motivation.

3. The composite strategy for the MO group was developed based on the orientation profile of experts. Currently, studies using advanced level performers have indicated that they have a combination of both self-improvement and competitive goals (e.g., Jackson & Roberts, 1992). However, sport psychology research concerning this topic is extremely minimal and these profiles are based primarily on a snap-shot approach. Little is known concerning how the goal orientations of experts might change and fluctuate during an entire competitive season. For example, they might be very mastery-oriented in the beginning of a competitive season, but become very competitive toward the middle and end of the season. As other researchers have suggested (e.g., Weiss & Chaumeton, 1993), more studies are needed that involve a longitudinal design in order to derive a more complete picture of an expert's goal profile.

Initial sport research has indicated that personal goals are a crucial organizing principle guiding motivational responses in athletic achievement. Although this study addressed more realistic concerns of the sport participant, there are many more questions that still need to be investigated. Resolving these issues will lead to a clearer conceptual model of motivation in physical achievement settings, as well as provide a groundwork for more sound recommendations for teaching sport skills. It is hoped that this study provides the impetus for this area to move in the appropriate direction for understanding more real world concerns regarding achieving skill in sport, and desirable motivational patterns that contribute to it.

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APPENDIX A

INTRINSIC MOTIVATION INVENTORY

Questionnaire to Assess your Feelings Concerning Putting

Please circle only one answer for the following questions.

1. I enjoy putting very much
7 6 5 4 3 2 1
Strongly Agree Strongly Disagree

2. I try very hard every time I putt
7 6 5 4 3 2 1
Strongly Agree Strongly Disagree

3. It is important for me to do well when I putt
7 6 5 4 3 2 1
Strongly Agree Strongly Disagree

4. I feel at ease when I putt in a game
7 6 5 4 3 2 1
Strongly Agree Strongly Disagree

5. I put forth a lot of effort when I putt
7 6 5 4 3 2 1
Strongly Agree Strongly Disagree

6. I have a lot of fun when I am putting
7 6 5 4 3 2 1
Strongly Agree Strongly Disagree

7. I am very interested in improving my putting ability
7 6 5 4 3 2 1
Strongly Agree Strongly Disagree

8. I feel very relaxed when I putt
7 6 5 4 3 2 1
Strongly Agree Strongly Disagree

9. I try very hard to make every putt
7 6 5 4 3 2 1
Strongly Agree Strongly Disagree

10. I feel a lot of tension when I putt for something important

7 6 5 4 3 2 1

Strongly Agree Strongly Disagree

11. Putting always holds my attention

7 6 5 4 3 2 1

Strongly Agree Strongly Disagree

12. I am nervous when I putt in a game

7 6 5 4 3 2 1

Strongly Agree Strongly Disagree

(1) I am more able in putting than most other students in class

7 6 5 4 3 2 1

Strongly Agree Strongly Disagree

(2) I am skilled at putting

7 6 5 4 3 2 1

Strongly Agree Strongly Disagree

(3) I will score better on a putting skills test than most people in class

7 6 5 4 3 2 1

Strongly Agree Strongly Disagree

(4) I am a good putter

7 6 5 4 3 2 1

Strongly Agree Strongly Disagree

APPENDIX B

THE CAUSAL DIMENSION SCALE II

Attributional Questionnaire

Male____________ Female____________

Age____________ Last four digits of SS#____________

I want you to recall a recent putting experience in which you did not perform up to your expectations. Please recall the most recent putting experience that fits this description. What is the primary reason for this outcome?

____

Think about the reason you have written above. The items below concern your impression or opinion for the cause of your performance. Please circle one number for each of the following questions.

____

Is the cause something:

1. That reflects an aspect of yourself	9	8	7	6	5	4	3	2	1	Reflects an aspect of the situation
2. Manageable by you	9	8	7	6	5	4	3	2	1	Not manageable by you
3. Permanent	9	8	7	6	5	4	3	2	1	Temporary
4. You can regulate	9	8	7	6	5	4	3	2	1	You cannot regulate
5. Others have control over	9	8	7	6	5	4	3	2	1	Others have no control over
6. Inside of you	9	8	7	6	5	4	3	2	1	Outside of you
7. Stable over time	9	8	7	6	5	4	3	2	1	Variable over time
8. Under the power of other people	9	8	7	6	5	4	3	2	1	Not under the power of other people
9. Something about you	9	8	7	6	5	4	3	2	1	Something about others

10.	Over which you have power	9	8	7	6	5	4	3	2	1	Over which you have no power
11.	Unchangeable	9	8	7	6	5	4	3	2	1	Changeable
12.	Other people can regulate	9	8	7	6	5	4	3	2	1	Other people cannot regulate

APPENDIX C

GENERAL INSTRUCTIONS AND INFORMED CONSENT FORM

General Instructions

My name is Gregg Steinberg. I am a graduate student in the Department of Exercise and Sport Sciences at the University of Florida. The goal of this study is to investigate how goals may influence putting ability. I will first assess your putting ability and then ask you questions about your thoughts and feelings concerning putting. Then I will give each of you an individualized goal-setting program related to putting. During the semester we will be practicing and playing putting games and you should use your goal-setting program every time you putt. Subsequent measures of putting performance and your thoughts and feelings about putting will then be taken at the end of the goal-setting program. This program will last 5 weeks. Complete explanations will be given to your after testing is completed. Are there any questions? I will now ask you to sign an informed consent form for your participation in the study. Thank you for participating!

University of Florida
Department of Exercise and Sport Sciences
Motor Behavior Laboratory
Consent Form

Project Title: Goal-setting strategies on putting ability

Principle Investigators

Gregg Steinberg, Motor Behavior Laboratory, FLG 25, 392-9575;
Robert N. Singer, Ph.D., Project Supervisor, FLG 305, 392-0584.

This is to certify that I,__________________________, hereby agree to participate as a volunteer in this investigation as a part of an authorized research program at the University of Florida, under the supervision of Robert Singer, Ph.D.

Purpose and Testing Procedure

The purpose of this study is to determine the influence of a goal-setting strategy on putting ability. You will first be given a goal-setting strategy and asked to use these goals every time you putt. Subsequent measures of putting performance and your thoughts and feelings about putting will then be taken at the beginning and at the end of the goal-setting program. This program will last 5 weeks.

General Information

(a) I understand that the experimenter will answer any of my questions about the research project and my rights as a volunteer subject.
(b) I understand that there is minimal risk to my health and well-being.
(c) I understand that I am free to withdraw my consent and to terminate my participation at any time.
(d) I understand that my data and answers will remain completely confidential.
(e) This project has been approved by the Institutional Review Board through August 1995.

I have read and I understand the procedure described above. I agree to participate in the experiment.

____________________ ________ _______
Signature of Subject Date Age

____________________ ________
Signature of Witness Date

APPENDIX D

GOAL STRATEGIES for the DIFFERENT GROUPS

Mastery Goal Strategy

I am going to present you with a goal-setting program which should help your performance in putting. Goals can help your performance in many ways, such as focusing your attention in the appropriate direction, increasing your effort, and augmenting your confidence. Furthermore, most successful people in all walks of life set goals for themselves.

The overall goal for you in this program is to focus on self-improvement during practice. These are the goals I want you to focus on every week:

(1) Focus on self-improvement. Specifically, try to decrease your own personal score on the mini-golf game by 5% every week. (For example, you got a total of __________points on your baseline measure. For this week you should try to get an average score of _________. Next week, you want to obtain an average score of________, the third week you want to get_______________ and the fourth_________.

(2) Decrease your putting score on the target putting task by 5% for this week. (For example, you got a total of _________points, You should try to get an average score of ______ for this week.
Next week's score should be__________, Third week's score should be __________and fourth week's should be____________.
(Example)

	MON	WED	FRI
FIRST GOAL: mini golf score			
SECOND GOAL: target score			

(Your goal setting program for the next four weeks is on the following page)

Week 1
Remember your goal is to focus on self-improvement in practice (improve by 5% for both tasks)

	MON	WED	FRI
FIRST GOAL: mini golf score			
SECOND GOAL: target score			

Week 2
Remember your goal is to focus on self-improvement in practice (improve by 5% for both tasks)

	MON	WED	FRI
FIRST GOAL: mini golf score			
SECOND GOAL: target score			

Week 3
Remember your goal is to focus on self-improvement in practice (improve by 5% for both tasks)

	MON	WED	FRI
FIRST GOAL: mini golf score			
SECOND GOAL: target score			

Week 4
Remember your goal is to focus on self-improvement in practice (improve by 5% for both tasks)

	MON	WED	FRI
FIRST GOAL: mini golf score			
SECOND GOAL: target score			

Outcome Goal Strategy

I am going to present you with a goal-setting program which should help your performance in putting. Goals can help your performance in many ways, such as focusing your attention in the appropriate direction, increasing your effort, and augmenting your confidence. Furthermore, most successful people in all walks of life set goals for themselves.

Your overall goal for this program is to be one of the best golfers in the class. These are the goals I want you to focus on every week:

1) Focus on winning as many solo competitive games as you can. Try to win more than 50% of the games in which you compete

2) Focus on winning as many team competitive games as you can. Try to win more than 50% of the games in which you compete.

(Here is an example)

Week 1	MON	WED	FRI
FIRST GOAL: W/L Solo games			
SECOND GOAL W/L Team games			

(Your goal-setting program for the next four weeks is on the following page)

Week 1
Remember your overall goal is to be one of the best putters in class (Win at least 50% of the games in which you compete)

	MON	WED	FRI
FIRST GOAL: W/L solo games			
SECOND GOAL W/L team games			

Week 2
Remember your overall goal is to be one of the best putters in class (Win at least 50% of the games in which you compete)

	MON	WED	FRI
FIRST GOAL: W/L solo games			
SECOND GOAL W/L team games			

Week 3
Remember your overall goal is to be one of the best putters in class (Win at least 50% of the games in which you compete)

	MON	WED	FRI
FIRST GOAL: W/L solo games			
SECOND GOAL W/L team games			

Week 4
Remember your overall goal is to be one of the best putters in class (Win at least 50% of the games in which you compete)

	MON	WED	FRI
FIRST GOAL: W/L solo games			
SECOND GOAL W/L team games			

Mastery-Outcome Strategy

I am going to present you with a goal-setting program which should help your performance in putting. Goals can help your performance in many ways, such as focusing your attention in the appropriate direction, increasing your effort, and augmenting your confidence. Most successful people in all walks of life set goals for themselves.

You will have two types of goals in this program. The first is to focus on self-improvement during practice and the second is to be one of the best putters during the competitive games. These are the goals I want you to focus on every week:

1) During the practice sessions, focus on self-improvement. Specifically, you want to work on decreasing your personal score on the mini-golf game by 5% (For example, you got a total of __________points on your baseline, you should try to get an average score of _________ for this week. Try to decrease your score by 5% every week. Thus, next week you should try to get an average score of ________, the following week_______ and the fourth week_________.

2) During competition, focus on winning. Specifically, focus on winning as many competitive games as you can. Try to win more than 50% of the games in which you compete.

(Here is an example)
Week 1

	MON	WED	FRI
FIRST GOAL: mini-golf score			
SECOND GOAL: win/loss record			

(Your goal-setting program for the next four weeks is on the following page)

Week 1
Remember your goal is to improve your ability in practice and to be one of the best putters during the competitive games.
(Improve by 5% in mini-golf and win at least 50% of games)

	MON	WED	FRI
FIRST GOAL: mini-golf score			
SECOND GOAL: win/loss record			

Week 2
Remember your goal is to improve your ability in practice and to be one of the best putters during the competitive games.
(Improve by 5% in mini-golf and win at least 50% of games)

	MON	WED	FRI
FIRST GOAL: mini-golf score			
SECOND GOAL wins/loss record			

Week 3
Remember your goal is to improve your ability in practice and to be one of the best putters during the competitive games.
(Improve by 5% in mini-golf and win at least 50% of games)

	MON	WED	FRI
FIRST GOAL: mini-golf score			
SECOND GOAL: win/loss record			

Week 4
Remember your goal is to improve your ability in practice and to be one of the best putters during the competitive games.
(Improve by 5% in mini-golf and win at least 50% of games)

	MON	WED	FRI
FIRST GOAL: mini-golf score			
SECOND GOAL: win/loss record			

No goal Strategy (Control)

The following are items about putting that you should know:

1). The grass on the green is Bermuda.

2). The speed of the green is measured by an instrument called a stimpmeter. This green is ranked at a speed of 7 on the stimpmeter.

3). This green is cut every morning at a .65 cm. height. Faster greens are cut lower and slower greens are cut higher.

4). Putters range in all shapes and sizes; however, there are some regulations to shape. For example, the width of the putter can not be wider than the length.

5). The ball you will be putting with is made of surlyn. This is a hard plastic. On the other hand, professional golfers will play with a balata ball. These balls are made of a much softer plastic. This gives the golfer more feel.

For the rest of the semester, try and do your best when we are putting.

APPENDIX E

PRACTICE SESSION INSTRUCTIONS

Tempo Practice During this time period, I want you to focus on the tempo of your stroke. Picture the rhythm of a pendulum swinging back and forth. A pendulum will slow down as it reaches the top of the swing and then speed up at the bottom. That is how you want to simulate that tempo. Try to make the stroke as smooth and rhythmic as possible. The better the tempo you have, the better your stroke will be.

Alignment Practice One of the keys to better putting is the ability to line up accurately every time. Most professional golfers practice their alignment by laying down a chalk line and putting on that line for a given period of time. I have laid a number of chalk lines down for you to practice your alignment.

Target Golf This task will be the same as that described for taking baseline measures of putting skill.

Mini-Golf (Solo) This task will be the same as that described for taking baseline measures of putting skill.

APPENDIX F

COMPETITIVE GAME INSTRUCTIONS

Congregated Best Ball For this game, I will pair you with someone in the class. Now, I am going to match specific pairs up to compete against each other in a best ball competition. In best ball competition, the pair will get a congregate score for each hole. For example, if you scored a three on the hole and your partner received a four, then, your team gets a seven on the hole. You will then compare that score to the opposing team. For every hole won you get a point and the game will be played to 10.

Best Ball Solo With this game is played the same as the congregate best ball game except that instead of adding the team score together, you will merely take the best score form each team and compare it with the other team's score. For example, if you scored a four on the hole and your partner received a five, then your team score will be a four. The object is the first team to 10 points.

Mini-Golf Competition This game will be played very similar to mini-golf solo, except you will compete against another person. You will keep each other's scores and report them to me at the end of play.

APPENDIX G

POST MANIPULATION QUESTIONNAIRES

Post Questionnaire for Goal Groups

The following are questions concerning your thoughts and feelings about the putting experiment:

1). Did you use your assigned strategy during the practice games? 1 2 3 4 5 6 7

Never All the time

2). Did you use your assigned strategy during the competitive games?

1 2 3 4 5 6 7

Never All the time

3). Do you think the goal strategies helped your putting performance?

1 2 3 4 5 6 7

Very Little Very Much

4). How committed were you to the goal strategies?

1 2 3 4 5 6 7

Very Little Very Much

5). Did you set any goals concerning putting besides the ones set for you by the experimenter. Yes____ or No____. If yes, please describe on back what they were.

6). How many minutes did you practiced outside of class?

Post Questionnaire for Control Group

1). Did you set any goals for yourself for putting during the semester. Yes____ or No____. If yes, please describe what they were.

2). How much time in minutes did you practiced your putting outside of class during the semester?

BIOGRAPHICAL SKETCH

Born on June 24, 1963, in Los Angeles, California, Gregg Steinberg was raised by his mother Beatrice Steinberg. He received his Bachelor of Arts degree from the University of California at Santa Barbara in 1986. Gregg then travelled to Florida State to pursue his master's degree in sport psychology under the tutelage of Dr. David Pargman. Upon the completion of this degree in 1991, he enrolled at the University of Florida in the College of Health and Human Performance as a Ph.D. candidate. He completed his dissertation and was awarded the Ph.D. degree in May 1996.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Robert N. Singer, Chair
Professor of Exercise and
Sport Sciences

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Milledge Murphey, Cochair
Associate Professor of
Exercise and Sport Sciences

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

L. Keith Tennant
Associate Professor of
Exercise and Sport Sciences

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

James H. Cauraugh

James H. Cauraugh
Associate Professor of
Exercise and Sport Sciences

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

James A. Shepperd
Associate Professor of
Psychology

This dissertation was submitted to the Graduate Faculty of the College of Health and Human Performance and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

May 1996

Dean, College of Health and
Human Performance

Dean, Graduate School